AMERICAN FORESTS

JULY 1945

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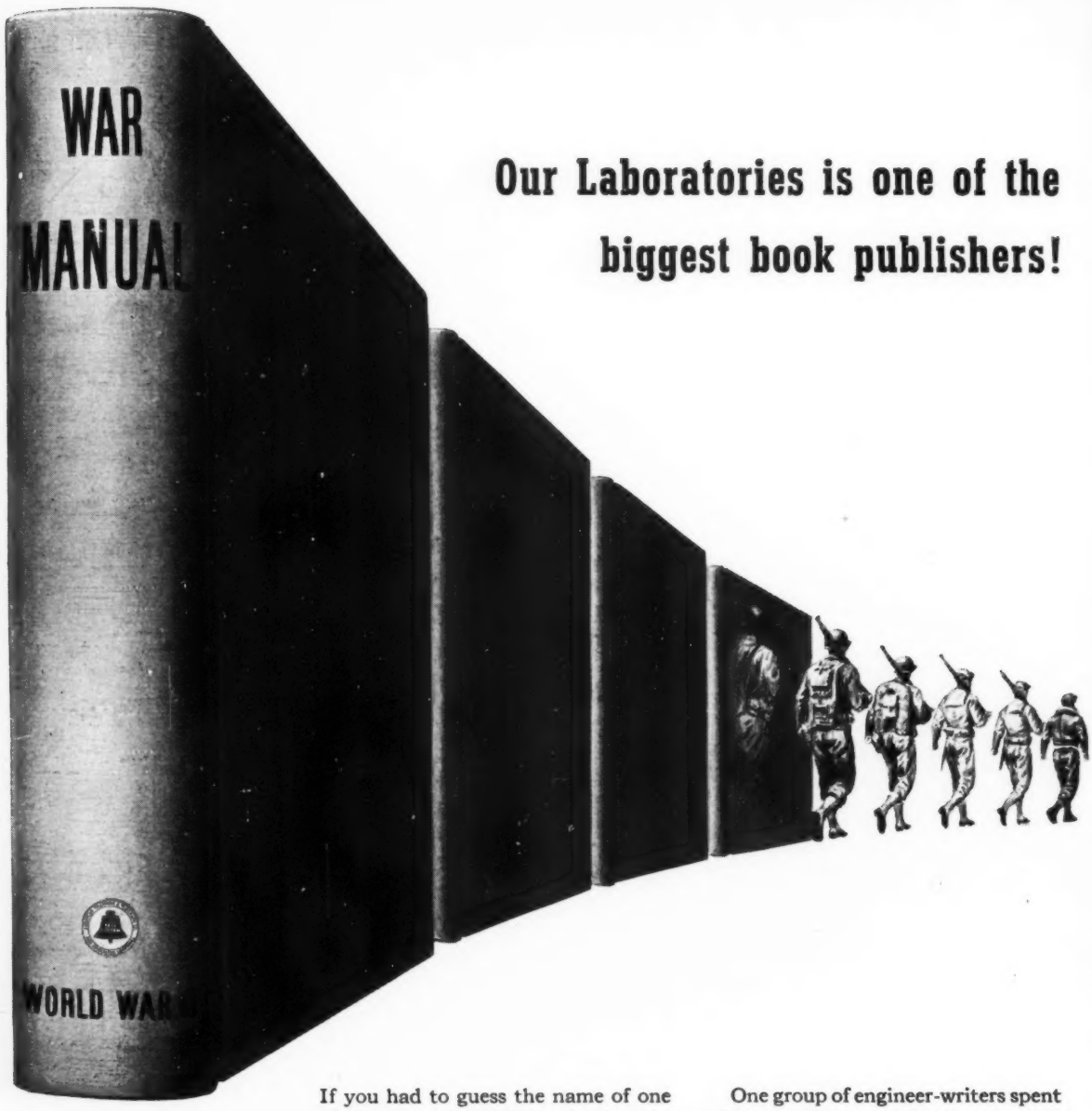

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AMERICAN FORESTS

VOLUME 51 JULY, 1945 NUMBER 7

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CONTENTS

	Page
FOREST EXCHANGE	314
MY FAVORITE TREE—John Kieran	315
EDITORIALS Vigilance the Price of Forestry Legislation The Plight of the Elm	319
RIVER DRIVE By Frederick J. Shulley	320
EUROPE'S FORESTS AFTER V-E DAY By Erle Kauffman	324
SIERRA BACK-COUNTRY By Claude M. Kreider	326
WAYNE COUNTY SHOWS THE WAY By J. O. Artman	328
NANTAHALA—LAND OF THE NOONDAY SUN By Dorothy Ferrell Hayden	332
ANOTHER ENEMY FLANKS THE ELM By Roger U. Swingle	334
HE STOLE 12,000,000 ACRES By Oren Arnold (Conclusion)	336
THE FAST-GROWING FORESTS OF ARKANSAS By Arthur M. Emmerling	338
FIRE-FIGHTERS MUST EAT! By R. H. Williams	344
THE "COLD FACTS" ABOUT LUMBER	346
A FOURTEENTH SON PRACTICES FORESTRY By Cal Stott	348
AROUND THE STATES	350
ROBERT STERLING YARD—A Living Influence By Benton MacKaye	354
BOOKS AND PUBLICATIONS	356
MARYLAND'S GREATEST TIMBER TREE	358
THE CONSERVATION CALENDAR	360
NEW STATE LEGISLATION	361

THE COVER
"Ever Alert"
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American Forests

Published monthly by

THE
AMERICAN FORESTRY
ASSOCIATION

919 Seventeenth Street
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The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational work in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. Its resources and income are devoted to the advancement of conservation in the interests of public welfare, and all citizens are welcomed to membership.

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THE FOREST EXCHANGE . . .

The Boys Like Us

SIR: I want you to know how much I appreciate AMERICAN FORESTS. I read every word of it and it doesn't stop there. It makes the rounds of this whole tent. Everybody here more or less is interested in forests and your magazine is a welcome addition at mail call.—*Pfc. John E. O'Neil*, 1st Fighter Control Squadron.

A Word From Germany

SIR: Since last night's mail arrived, I have been reading the first copy of AMERICAN FORESTS I have seen in nearly two years.

Time in this Army has given me a fine opportunity to see at first hand some of the forests of Scotland, England and Wales. The best—to me, at least—were in New Forest, England, where Douglas-fir and other American trees seem to be doing very well.

Language has been a handicap for me in France, Belgium and Germany. Yet the forests around Meiningen were as fine as I have ever seen. Of course I have an untrained eye and little technical knowledge to judge these woodlands—but when I get back I plan to study so that some day I may be a useful member in the work you and others are doing.—*Pfc. Frederick Robie, Jr.*, Runkel, Germany.

An Old Poison Ivy Trick

SIR: On reading "How to Beat Poison Ivy" in your June 1944, issue, the following may be appreciated by some readers as a supplement:

Our older children were suffering from ivy blisters and their nurse, born on a farm a good many years ago and possessing the Yankee trick of picking up traditions and remembering them, sent out for sweet fern. From the leaves and twigs of this she brewed a strong tea which was liberally applied to the affected hands and feet.

How many applications were made is now forgotten, for this incident occurred over thirty years ago. But from that day on, all summer and for a good many summers, a saucepan of sweet fern tea was constantly drawing on our kitchen stove. In mild and early cases of poisoning, all the children bothered to do was wet a wad of cotton in the tea and dab it on. Then they would go out to play until the itching again attracted their attention, when another dab was applied.

The tea had one disadvantage. It stains permanently like iron rust. And it is only right to say that one child out of our half dozen did not find it effective. One other person has made the same report. But with an uncounted number of known successes as against one or two known failures over thirty years, it is safe to say that sweet fern tea offers at least a ten or twenty to one chance of success of promptly ending poison ivy itching.—*Charles G. Morris*, New Haven, Connecticut.

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My Favorite Tree

By JOHN KIERAN
Of "Information Please" Fame

WHEN asked to name my favorite tree, I examined my conscience and could come to no definite conclusion, the difficulty being that I admire so many trees so much that I would feel like a foul traitor if I picked out one species as the top choice. At different seasons and in different localities I am deeply attached to oaks, ashes, maples, fruit trees, pines, hemlocks, sweet and sour gums and elms, in turn.

But if I am to be pinned down, I believe I'll have to take the birches—particularly the white, *Betula lenta*, in our neck of the woods—because they have the virtues of most other trees and they set a delicious table for so many goldfinches, redpolls, pine siskins and other seed-eating birds during hard winters when the snows are deep and the winds are high. Nothing delights my eye so much as a flock of chattering redpolls feeding on the cones of the black birch when the snow is whirling down and the winter winds are wearily sighing.

But now that I've named the birches, I'm wondering how I am going to square myself with my friends to whom I so often have pointed out the magnificent columnar trunks of the great tuliptrees of our neighborhood. I'm out on a limb now, for sure.

Now Ready! NEW RCA FM FOREST RANGERS

New Features—New Advantages—

New RCA 26-42 MC (Mobile or Station) Transmitter Features

1. Superior audio quality sets new standard. Sounds better. Easier on the ear. Easier to get message.
2. Positive modulation threshold limiter. Adjusts automatically to input of low or loud voices. No "blasting."
3. Low spurious emission. Less extraneous noise interfering with other services. Fewer energy leaks to make trouble.
4. Improved phase modulator requires no tuning. No more bother with modulator.
5. Excellent stability over wide temperature range. Temperature change has minimum effect on operation of equipment.
6. Adjustable to exact, specified frequency. Easy, precise tuning in a hurry.
7. All tuning adjustments are from top of transmitter. Easily accessible. (Remember those times you have had to turn the chassis over?)
8. No high voltage exposed above chassis. All dangerous voltage out of reach. (Many times a slip of the hand might have given you a shock.)
9. Provision for two-frequency operation. Useful when you want to switch over from talking between car and station to talking between car and car (and in lots of other ways).
10. Single control cable—also accommodates receiver. One cable, instead of three or four, running from front of car to rear. Simplifies installation and maintenance.
11. Mobile cables equipped with separable connectors. Add flexibility in operating equipment. Equipment removable without using special tools. All cables plug in and lock.
12. Chassis readily detached from base. Easier to inspect and service.
13. Single-unit construction saves space.
14. Easy to install. Mounting hardware supplied. Comes complete, down to bolts and nuts.
15. Start-stop switch on chassis to facilitate adjustment. (Think how much better this is than having to go up front and press a button to turn on the transmitter.)

New FM 26-42 MC (Mobile or Station) FM Receiver Features

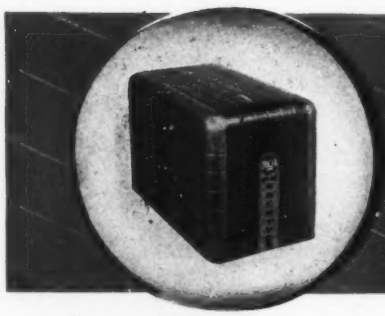
1. Superior adjacent-channel selectivity. You hear the station you want to hear.
2. Low spurious response. Won't pick up unwanted signals.
3. Excellent stability over wide temperature range. Variations in temperature have minimum effect on operation.
4. Single-unit construction. Fewer interconnecting cables. Easier to service.
5. Easy to install. Mounting hardware supplied. Comes complete, down to last nut and bolt.
6. Chassis readily detachable from base. Easy to remove for inspection and servicing.
7. Mobile cables fitted with separable connectors. Cables plug in and lock. Require no special tools. (Another important point—you can't plug in the wrong cable!)
8. Low battery drain. Less battery servicing.
9. Class B output tube saves power on standby. Output stage takes very little power except when signal is being received.
10. Provision for carrier-operated relay. Can be used to operate other circuits for auxiliary signalling—turn on light, ring bell, etc.—or operate retransmitting equipment.
11. Single crystal. Eliminates potential trouble with matching crystals.
12. Attractively styled. And we mean darned good-looking.

97-6136-127

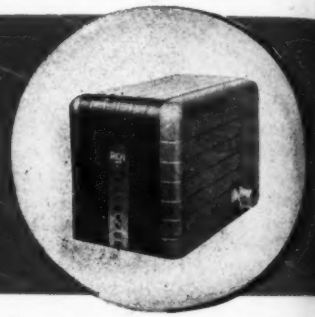
• This is news!

RCA—the leading prewar manufacturer of forest rangers' and fire wardens' radio equipment, and wartime manufacturer of the most advanced types of military radio and radar equipment—has a complete new line of FM equipment rolling off the factory line and ready for delivery . . . now!

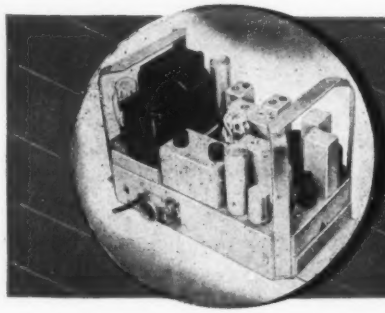
When you see it, operate it, hear it—observe its superior convenience, performance, and facilities for easy, quick servicing—



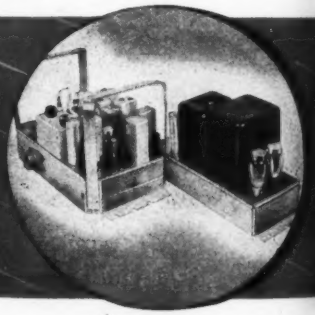
1. FM Mobile Receiver: Ultra-modern circuits, construction and styling. Small, compact, rugged. Easily removed from mounting base. Simple to service. Provided with either dynamotor or vibrator type power supply.



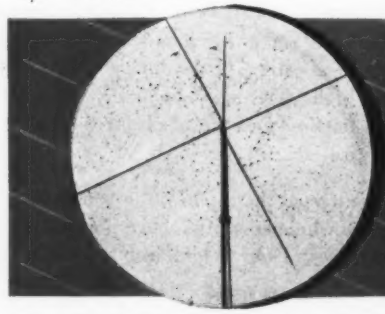
2. FM Station Receiver (for shelf-mounting): Same chassis unit as #1, but intended for shelf-mounting in headquarters control room. Easily and quickly installed. Attractively styled cover adds to station's appearance.



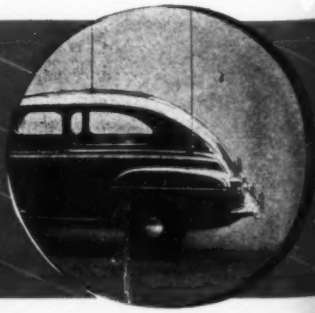
6. 30-Watt FM Station Transmitter: Uses same chassis unit as #4. Can be furnished with dust cover (as shown in #4) for shelf-mounting, or with brackets for mounting in standard RCA cabinet-rack, such as shown in #8.



7. 60-Watt FM Station Transmitter: Uses same chassis as #5, but is furnished with chassis brackets for rack-mounting. A.C. power supply is a separate chassis unit. Not furnished for shelf-mounting.



11. Station Antenna: A standard RCA design of proved performance. Consists of vertical radiator plus four "ground" rods. Easy to install, neat appearing, and provides more gain than simple rod type.



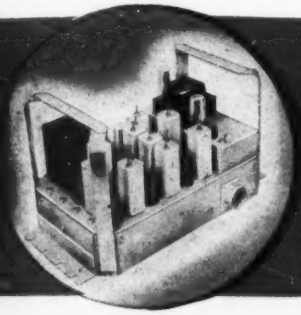
12. Mobile Antenna: Furnished with FM mobile transmitters shown above. Two models, one for roof-top, the other for fender mounting. Simple one-hole mounting. Supplied complete with connecting coaxial line.

RADIO EQUIPMENT for FOREST RANGERS AND FIRE WARDENS—New Design—An Entirely New Standard of Performance

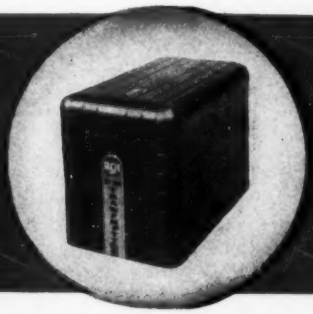
you will agree that this new RCA equipment sets a new standard of radio usefulness for forest rangers and fire wardens in public service and lumber companies.

It tunes easier, sounds better, is more stable. It operates simply, smoothly, surely. It is more selective, requires fewer adjustments, and less maintenance, yet can be serviced more quickly, easily, and safely.

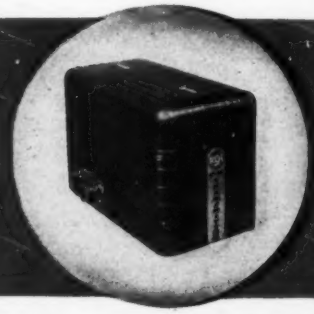
These are strong claims. They are claims you should investigate—and we invite you to do so. For your convenience, a coupon is at the lower right-hand corner of this page to bring you the whole story. But first, read the column at the left—study the pictures below, read the captions under them—then fill in the coupon. And remember that, at any time you wish, an RCA engineer will show you how these new RCA equipments can be used to best advantage for the special needs of forest rangers and fire wardens.



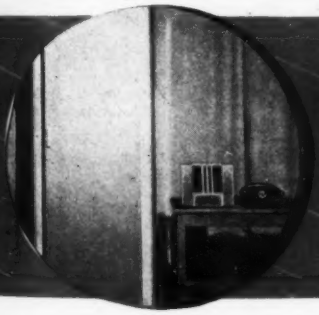
3. FM Station Receiver (for rack-mounting): Also, the same chassis unit as #1, but without cover, and provided with brackets for mounting in a cabinet-style rack. This is the type of mounting used in most larger installations.



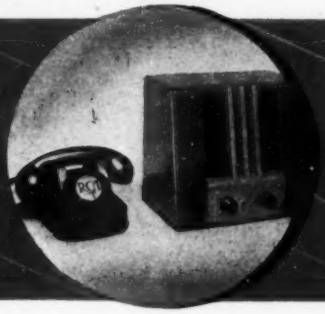
4. 30-Watt FM Mobile Transmitter: Mounted in attractively styled housing matching the receiver unit. Makes use of improved phase-modulator circuits providing better quality and better stability. Arranged for two-frequency operation, if desired.



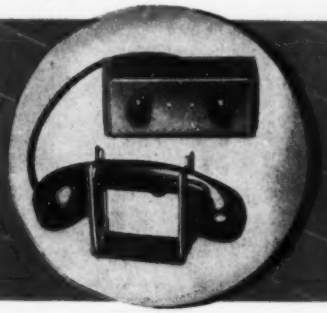
5. 60-Watt FM Mobile Transmitter: Similar to #4 in over-all size and appearance, but provided with additional tube in output stage, in order to obtain full 60-watt carrier. Both transmitters use built-in dynamotor supply.



8. 250-Watt FM Station Transmitter: Consists of the two chassis shown in #7 (as an exciter), plus a 250-watt amplifier, mounted on a similar-type chassis. All assembled in an attractively styled cabinet rack.



9. Station Handset and Control Unit: Furnished with the FM Station Transmitters shown here. The control unit contains a loudspeaker, plus controls for adjustment of "volume" and "squelch." Also, "transmit," "receive," and "stand-by" signal lights.



10. Mobile Handset and Control Unit: Furnished with the FM Mobile transmitters shown above. The two units can be conveniently mounted on the dash in any desired position. Control includes "volume" and "squelch." Signal lights indicate "transmit" and "stand-by."

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Please send me complete data about your new FM Radio Equipment for Forest Rangers and Fire Wardens.

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MIDSUMMER LANDSCAPE

"Myriads of daisies
Have shone forth in flower"—

(*Wordsworth*)

EDITORIALS

VIGILANCE THE PRICE OF FORESTRY LEGISLATION

NOW that most state legislatures have wound up their 1945 sessions, foresters the country over are studying the new measures that deal with forestry and appraising the progress that has been made in the country as a whole. All things considered, the record is neither extra bad nor extra good. There has been widespread strengthening of support for protection of forests against fire, facilitated no doubt by war-engendered patriotism, prosperity and Clarke-McNary Act increases. In certain states the financing of protection has been placed on firmer foundations. In others the protection systems themselves have been overhauled and strengthened.

Here and there funds have been made available to begin or expand programs of land acquisition for state forests. It is interesting to reflect that because of such fortuitous legislation a few state foresters find themselves able to outbid and outmaneuver Uncle Sam and so head off some of the more aggressive "scattergun" buying by the federal government. The fly in the ointment is that because of present extravagant ideas of value, thrifty state foresters are loath to buy.

Accomplishments in the field of forest practice legislation have been significant, but few in number. In two states, Washington and California, new approaches have been made to the ticklish job of regulating forest harvesting. In a few states where such statutes were already on the books, clarifying and strengthening amendments have been enacted. The comparative ease with which such improvements are secured illustrates a useful axiom of law making—that it is easier to make a regulatory law good by amendment than to enact a good one in the first place.

Examining the record of new forest practice bills which failed to become law, we are shocked to learn that in at least one state, Michigan, a carefully prepared measure, sponsored by the State Department of Conservation and strongly supported by the most responsible elements of the forest industries, lost out by reason of the opposition of small operators and owners in the forest products field. Alarmed over the prospect of being forced to leave small trees standing or to do a more workmanlike job of timber harvesting, they rushed to the legislators protesting that they were about to be put out of business by the big operators. And, of course, the legislators, as is their custom when voters swarm, took fright and let the bill die.

The price of good forestry laws is forehanded vigilance. Proponents of forest practice legislation at the state level must learn that the battle is only half won when industry sees the light and joins up. For the farmers and particularly for the pulpwood contractors, sawmill operators and gyppo loggers, all groups of considerable numerical strength, there must be carefully devised and skilfully handled campaigns of enlightenment. There are strong arguments for use in bringing these groups to support such legislation, but the work must be done well in advance of the hectic law-making session. When members of these groups take fright and swarm through the state house corridors, it is too late to win them over.

THE PLIGHT OF THE ELM

THE American elm, fighting a gallant battle for existence along the Atlantic seaboard since 1930, is now the victim of a two-front war. Just when we were beginning to be optimistic over the chances of this stately tree in its battle of attrition against the Dutch elm disease, word comes that an even deadlier enemy is flanking the elm in the Middle West (see page 335). It is elm phloem necrosis, a virus disease similar in nature to man's yellow fever. Known to exist in the middle and lower Ohio watershed for more than a quarter century, it is, strangely enough, little understood. Only now, after it has inflicted more terrible casualties than its Dutch ally in the East, are we beginning to know something of its destructive processes.

We have learned, for example, that necrosis strikes swiftly and fatally. Not a single tree among the many thousands known to have been stricken has recovered. There are no wounded on the elm's western front. It is now known that apparently healthy and vigorous trees succumb within a few weeks, that others—not many, unfortunately—appear immune to attacks. Scientists have learned how to distinguish an infected tree by the color and odor of its inner bark; that dying begins in the small fibrous roots. Finally, it has been found that the virus can be transmitted from diseased to healthy trees by grafting.

What we do not know, though an insect is suspected, is the mode of transmission under natural conditions—how the virus is spread. And though only the American elm has been victimized so far, it cannot be said with certainty that other species are not susceptible to the virus. In a word, we do not as yet know how to fight phloem necrosis—how to check its murderous assaults.

Why this should be, when the virus has been known to exist in this country since 1918, is a question many might well ask. Why only in the past decade, when the situation became alarming, has a serious effort been made to determine its cause and control? The blame cannot be placed at the doorstep of the several bureaus of the Department of Agriculture now working feverishly on the problem. With limited appropriations and facilities, they are forced to face the mounting battle against tree killing insects and disease on the principle of "first things first," shifting their meagre forces from one front to another as the seriousness of the situation demands.

The blame, it seems to us, falls heavily upon the American people. They have the collective power to see to it that adequate provision be made by their government, both national and state, to check the march of these tree destroyers—conceivably, before they become too great a menace. As a people, we have watched the chestnut disappear, have stood by passively while the sycamore and other favorite trees yellow in death. Each year we witness the tragic toll of western pine taken by an army of silent killers without demanding the weapons necessary to halt the slaughter. And now the American elm fights for its life on two fronts.

We found that Hitler couldn't be licked with a popgun. Perhaps the plight of the elm will make us realize the futility of trying to defend our valuable trees with a fly swatter.

RIVER DRIVE

How River Drivers, Armed With Peavies and Pike Poles, Fought the Battle of Wood This Spring on Maine's Dangerous Waters

By FREDERICK J. SHULLEY

IN MAY, just a few days before the Nazis threw in the sponge, 150 nimble-footed French Canadians, armed only with peavies, pike poles and canthooks, delivered a sharp body blow to Hitler's counterpart in the Pacific. They brought down from the forests of the St. John country of northern Maine 35,000,000 board feet of sawlogs and 35,000 cords of pulpwood, both critically needed for the quick defeat of Japan. They sweat it out down the St. John River in a typical Maine river log drive during a period of high, dangerous water. And they did it in five weeks—twenty-five miles a week. The price they paid was nearly five percent casualties, including five men killed.

River log drives on the St. John and other Maine rivers are not new, of course. Logs and pulpwood have been coming down on the flood waters each spring for many years. What makes the 1945 drive of more than ordinary interest is that at a time when production of lumber and pulpwood is lagging,—has reached, in fact, possibly the most critical stage since the war began, it delivered to the mills more wood than the spring drive of 1944. How important this is was recently emphasized by Chairman J. A. Krug of the War Production Board. Pointing out that WPB officials are gravely concerned over the current low receipts of both lumber and pulpwood and the continued drain on inventories at the mills, he declared that production must be vigorously increased if serious shortages and mill shut-downs are to be averted this summer and fall.

"Increased production of lumber and pulpwood is absolutely essential to the successful prosecution of the war in the Pacific," he warned.

The overall production goal for this war year is 32,000,000,000 board feet of lumber and 16,000,000 cords of domestic pulpwood—a goal current production is failing to meet. This, WPB officials explain, is due in large measure to extremely bad winter weather in some producing areas, coupled with early ice and snow break-ups in the north, which made it difficult if not impossible to move large amounts of wood cut this past winter—and to labor and transportation problems.

That northern Maine woodsmen

The river journey begins for this pulpwood stacked along the Wallagrass. It will end in Tokyo

"Rolling" a log. Don't try this unless you have the sure-footedness of a mountain goat, the balance of a toe dancer and the reflexes of a juggler. Even then you'll need lots of luck to keep dry

shared these problems must be taken for granted, but the fact remains they delivered their sawlogs and pulpwood on time and in increasing quantity. The log drive was the operation of the Van Buren Madawaska Corporation for its sawmill at Keegan; the pulpwood was for the mill of the Port Royal Pulp and Paper Company, Ltd., at St. John, New Brunswick, Canada. The sawlogs—spruce, fir, hemlock and some white pine—were cut and decked last winter along the St. John, Big Black and Pockwack rivers; the pulpwood—spruce and fir—was cut along the Big Black and its tributary streams. The two drives joined where the Big Black flows into the St. John.

The writer was on the drive for about a week, mainly to make a series of pictures, some of which are reproduced here. It was his first big-league log drive, although he is a forester with considerable timber cruising experience in the Canadian bush. He knew the country of the St. John and the Allagash only through famed Aroostook County, where 54,000,000 bushels of potatoes were produced in 1944. And he was not surprised to find the forests very much like the Canadian bush, popple and birch with an understory of spruce and fir and isolated white pine on the ridges. But the drive itself surpassed in drama, in its display of skill and courage, anything he had ever before witnessed.

He watched as cold chills beat up and down his spine the mountain-goat antics of the French-Canadian drivers running logs, keeping them moving, ever moving. He stood spellbound as they rode their bateaux, the flat-bottomed boats of

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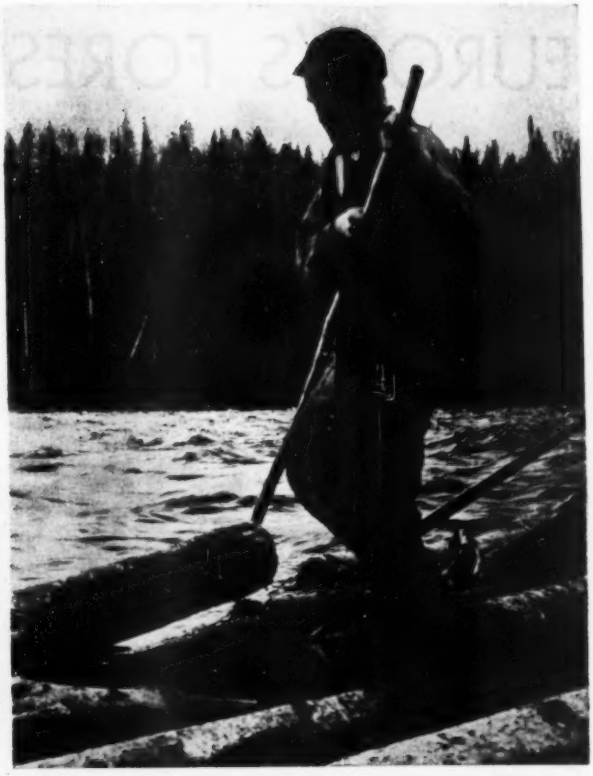
"Keep 'em moving," was the battle cry of the St. John drive. Here pike poles and peavies are employed to break a log jam

their trade, with native nonchalance through churning water to attack midstream log jams—the "centers" that, until broken, hold operations at a standstill. This is no job for the novice; indeed, only the most experienced drivers are entrusted with this delicate mission. Piled up against a rock or other obstruction, the logs, like so many jackstraws, must be probed with peavy and canthook until the "key" stick, the one causing the jam, is discovered and freed. When this happens, the jam, likely as not, may move out with frightening swiftness. Often dynamite must be employed to release these centers—risky business on any river.

Near Big Rapids, where the current races along with crushing power and speed, five men met death. Their boat was struck by a plunging log and upset. Some say it was the work of Sock Saunders, the imaginary figure who makes life complicated for the river driver, just as the gremlin torments the aviator. It is Sock Saunders, according to legend, who can start a key log or pulpwood bolt rolling from beneath a river driver's perch atop a jam, leaving him to scamper up over the moving



Typical of the river drivers is twenty-eight-year-old Napoleon Viel, nimble-footed veteran of many drives down the St. John

wood in order to save himself from being crushed.

The writer also had the experience of being on the pulpwood drive of the Great Northern Paper Company, on Wallagrass Stream. Thirty-five thousand cords of pulpwood were cut and piled on the ice over the channel last winter. When the ice moved out this spring, the men drove the pulpwood down stream to Wallagrass Lake, where it was trucked to the railroad and thence to the big paper mill at Millinocket, Maine.

Typical of the spirit of the whole drive was the comment of an unnamed logger when informed, on April 28 (the date of the first and unfounded report) that Germany had surrendered. "That's fine," he said. "Now let's get this stuff down so we can throw it at the Japs."

And that, in a word, is exactly what will be done with it.

Part of the boom of nine million feet of logs at the sawmill at Keegan. Mixed with the logs is pulpwood, which will be sorted out and sent on down the river to St. John, New Brunswick

EUROPE'S FORESTS AFTER V-E DAY

As Yet, Little is Known of Their Condition—But Here Is a Summary of First Reports

By ERLE KAUFFMAN

ALTHOUGH more than a month has elapsed since Germany's surrender, there was available in mid-June little information of an authoritative nature on the state of Europe's forests after the most destructive war in all history. Reliable sources say this is due in large measure to military and political considerations and to the fact that observers still were overseas. Best estimate is that an official report on conditions, if one is made, will be delayed several months, perhaps longer—at least until definite policies are announced by the armies of occupation and the political scene becomes more serene.

What information is available, however, though sketchy and generally lacking confirmation, is extremely interesting, and perhaps significant, in that regardless of sources, whether official or unofficial, there is but slight variation in major conclusions. Briefly stated, these conclusions are as follows:

German forests, considering the length and nature of the war, are in remarkably good condition. This is particularly true of state forests. Most excessive cutting has been on privately owned woodlands, especially near transportation lines. And even here there is evidence to indicate that forestry principles were not wholly discarded until late in the war and only after thinnings and less desirable trees had been removed.

To some extent a similar situation is indicated for France. Privately owned forests in general have been excessively cut, while state and other public forests are in fair condition. One estimate is that wartime production of forest products other than lumber was not increased more than twenty percent over the prewar figure, although the lumber cut may be twice as great. Key to this situation, it appears, is that the Nazis permitted the French to handle their own production, even trained French foresters and other technicians for the job. Thus the French were able in many instances to write their own cutting rules and as a result public forests, wherever possible, were spared. Even private forests may have fared better had it not been for black market operations, induced by scarcity and the high price of lumber.

Belgium and Holland received less favorable treatment. The war cut in Belgium is believed to have been about three times the normal prewar cut—a figure considered not too serious in view of the fact that Belgian forests are normally well managed. Holland, on the other hand, was forced to cut on such a scale, including immature trees, that a large part of the meagre forests of that unfortunate country have been exhausted.

A favorite Nazi trick was to blow down trees with a charge of TNT

The Nazis also were ruthless in exploiting Norway's forests. One report is that practically all accessible timber has been cut. Another claims that the birch forests of northern Norway have been damaged for generations. An interesting angle on the situation is that the Germans at first boasted they would improve forest conditions in Norway. Actually, they cut with little regard to forestry practices.

The forests of Czechoslovakia, under control of the Nazis since the Munich agreement, are believed to have suffered severely, although little is known of their present state. There is some evidence, however, to indicate that as early as 1939 the Germans were taking double the normal amount of wood from the Czechs. Also, there are reports of complete forest devastation in some regions.

In Italy, the ravages of war resulted in much overcutting and widespread abuse of forest resources. This is considered serious in view of their already badly depleted condition.

Finland escaped severe war damage where its forests are concerned, but is forced to send, under reparation agreement, a considerable amount of wood products to Russia. Sweden, untouched by war, suffered no loss except of markets for forest products, and is reported to have accumulated vast stockpiles for postwar trade.

As for Russia, Poland and the Balkans, little is known at present. The Soviets are believed to have more than 2,000,000,000 acres of forest land, the greater part of which lies in western and eastern Siberia. Less than 500,000,000 acres are in Europe. Undoubtedly a considerable portion of these European forests suffered during the Nazi invasion and occupation—and in the subsequent Russian counter-attack—but only the Soviets know to what extent. Polish forests are believed to have suffered as severely as that nation's people during the German occupation. In Bulgaria, Jugoslavia and other Balkan countries, the situation is too obscure for even a rough estimate of conditions. The same may be said about Austria and Hungary, though opinion is that the timberlands of these countries, annexed by the Nazis as part of the Reich, fared better than those of the occupied nations.

In this country it is generally believed that German forests survived the war in

good condition because the Nazis planned it that way. There is some evidence that, despite early rumors to the contrary, Germany's prewar cut, strictly regimented, was not in excess, and probably below the rate of growth. The idea apparently was to build toward a peak growing stock as a war reserve, to be used if and when wood requirements could not be met from the forests of the conquered lands.

The plan apparently worked well until 1942 when the Nazis were beset by labor shortages and transportation difficulties—troubles that multiplied rapidly in 1943 under Allied bombing. During this year the transportation situation deteriorated so rapidly that major cutting operations were confined to favorable locations. Then Swedish exports began to fall off, supplies from the Balkans were blockaded, and the pressure was on. By the middle of 1944, with conquered forests being reconquered, the Nazis were overcutting their own timberlands, cautiously at first, but increasing the tempo as their situation became more and more desperate. In time, this was checked by the utter collapse of transportation facilities.

Just what claims the armies of occupation—American, British, Russian and French—will make on German forests cannot be answered at this time. As yet, no policy has been announced. Obviously, military needs for wood in all forms will be great—lumber to house troops, to repair essential buildings; timbers to restore transportation and communications; pit props to get blasted mines back in operation; wood for fuel, for a thousand essential uses. Then, in the American zone of occupation, there is the matter of redeployment. Several million men and billions of dollars worth of equipment must be transferred to the Pacific—or back to this country. This means wood for crating, boxing and packaging. How it will be supplied—and from where—is for the present strictly the business of the Army.

Then there is the matter of the immediate needs of the war-exhausted people of the continent. Considering only the barest essentials, millions will have to be housed this winter and supplied with fuel. Industries of all kinds must be restored to provide employment. The task—just the immediate task—is staggering, as may be the demand for wood. Then ahead is the long road to reconstruction. Russia, according to reports, is already on the way. In the regions devastated by the Nazis, many thousands of prefabricated houses have been produced on a mass scale. One group of factories alone is said to be producing them at the rate of 4,000 a month.

The next sixty days, it is believed, will provide some gauge as to the ability of Europe's forests to meet the present crisis. Negotiations between the depleted nations and the more fortunate ones are already under way. Great Britain, which sacrificed even its shade trees for victory, is hopeful, for example, of obtaining help from Russia. Other countries are turning to Sweden, reported glutted with both lumber and pulpwood ready to ship. As far back as the spring of 1944, there was enough wood in Swedish mills to supply both lumber and pulp for a year's operation at full capacity.

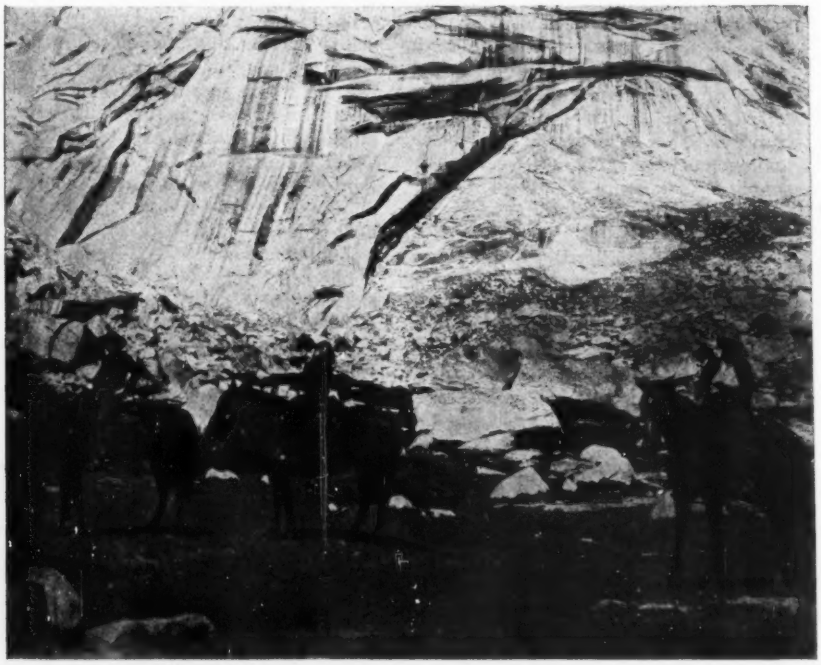
Then there are the forests of Germany. What part will they play in restoring order and basic living conditions in the countries ravished by the Nazis?

Though battle-scarred and shrapnel-riddled in areas where fighting occurred, German forests, considering the length and character of the war, are reported to be in remarkably good condition

SIERRA BACK-COUNTRY

For Your Postwar Vacation, Consider the High, Rugged Hinterland of Yosemite and Sequoia National Parks — That Is, If You Like Untamed Country

By CLAUDE M. KREIDER



A good mountain horse will take you above timberline—to where walls of glaciated granite check even the march of plush-like grass

IF you are planning after the war, when travel restrictions are relaxed, to enjoy once again your heritage of natural beauty, the chances are Yosemite and Sequoia national parks, in the California Sierra, are high on your itinerary. And they should be, for nowhere will you find nature more generous with her masterpieces.

In the narrow confines of Yosemite Valley you will be treated to majestic waterfalls and giant granite domes; and in the Giant Forest of Sequoia, a hundred miles to the south, you will stand in awe beneath great trees that dwarf the imagination. Perhaps your pent-up longing for beauty will be satisfied with this experience, but if not, if you are one who needs solitude amid nature's grandest handiwork, then there is the unfrequented wilderness. Fortunately for you, both Yosemite and Sequoia are rich in rugged back-country.

Yosemite has more than a thousand square miles of wilderness, stretching from the valley rim to the main Sierra Crest. This great domain is remote and green and satisfying; yet there are stark granite peaks and great glaciated domes by the score. There are tremendously deep gorges and white waterfalls, pouring down from the snow. Thus, you may camp in any one of a hundred green meadows, with hairgrass underfoot as soft as a rug, with a path of wildflowers leading down to a murmuring stream past the warm, brown trunks of fir and lodgepole pines. Birds will be singing overhead, and bees humming at their business among the flowers. And above are the snow peaks, serried and austere.

Roads are few in this Yosemite hinterland, yet the Tioga road, paved and with easy grades, climbs out from the valley, crosses the park, and forms a connecting link with the Lake Tahoe region and the eastern Sierra vacationland.

In Tuolumne Meadows, just below Tioga Pass, you will find everything desirable for a comfortable camp in a subalpine belt of approximately 8,000 feet elevation. Softly chuckling Tuolumne River winds through the Meadow only to break into wild, tearing rapids, waterfalls and churning cascades a few miles below. They are yours to enjoy.

By now you will be wondering why anyone ever wanted to visit the Swiss Alps and, perhaps, you will feel the urge to commune with the real Yosemite back-country, far from a highway, beyond those distant peaks. Well, there's probably a thousand miles of alluring trails in this great domain, and it is all yours.

You will need only to observe a few sane rules and choose your mode of travel, which will, of course, be either horseback or afoot. A "deluxe" pack trip can be arranged with the outfitters in the Valley, who will provide an experienced guide, safe saddle horses and pack mules enough for any degree of camp comfort desired, even to folding furniture and a bath tub. But, if you have the pioneer instincts, you may wish to rent a little pack burro and go it alone. The men at the stables will put on your first pack, teach you the famous diamond hitch, and help choose the essentials of outfit and food necessary for comfort. Park maps, and a network of trails, with appropriate signs at the main forks, will insure against "getting lost."

Far north, across the gorge of the Tuolumne, another "Yosemite" in itself, lie beautiful lakes that perhaps have not been seen by human eye in a year. There is near-virgin trout fishing in streams surrounded by forests of fir and spruce and lodgepole pine. Or whim may take you to the south, instead. And, off there, clear to the blue haze of the San Joaquin watershed, stretches the equally immense and satisfying Merced River basin. It is confined on the Main Crest by the highest and most spectacular peaks of the northern Sierra, dominated by Mt. Lyell, 13,100 feet, and its great glacier.

The possibilities of various loop trips are endless and need be governed only by your desires and the time available. The writer once rode 375 miles of Yosemite trails in a month, and came home with a feeling of barely knowing just a part of the park. And, if you prefer hiking over "easy" trails, unhampered by pack stock, there is a solution. You sim-

ply take the family, each shouldering a little knapsack containing extra socks, a shirt and toothbrush, and start out with a trail map, showing the various hikers' camps, each an easy day's stroll apart.

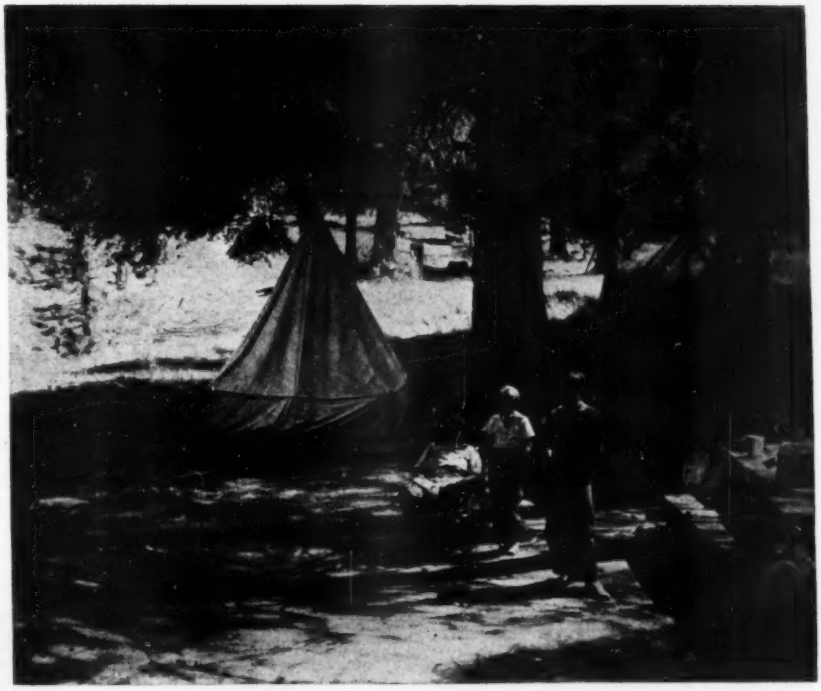
At night you come to a group of tents, enjoy a hot meal, rest on a comfortable cot, then stay a day or two, or wander on, as you will. Along the trail you will fish, or take pictures, or study the great glaciated granite domes and canyons, for which Yosemite is famous.

Perhaps 100 miles south of Yosemite lies Giant Forest which, to most people, is actually Sequoia National Park. But the Forest, like Yosemite Valley, is only the area immediately adjacent to park headquarters. It is truly magnificent, for it contains the world's finest grove

There is grandeur—and good fishing—up under the jagged peaks

of noble sequoia giants, presided over by the immense and stately General Sherman tree. Visit this marvelous area, by all means, and commune with yourself, far back in the cathedral quiet, surrounded by these great trees, many of which were mature specimens when Christ was born.

Then you will want to climb the hundreds of steps to the top of gigantic Morro Rock, a glaciated monolith rising almost sheer 3,000 feet above the Kaweah River. Up the main river gorge the eye will wander, to the distant forested ridges and, finally, to the peaks of the Great Western Divide. Before you and beyond, will stretch the 600-square



Less rigorous is the lower, forested slopes of the Sierra—but still remote. This family camp is twenty miles from the nearest road

mile area of greater Sequoia park and perhaps you will feel the wanderlust to explore a portion of it. Your route then, most likely, would follow up one of the forks of the Kaweah River. Characteristic of the great range this, and the other mighty river systems, are fed by count-

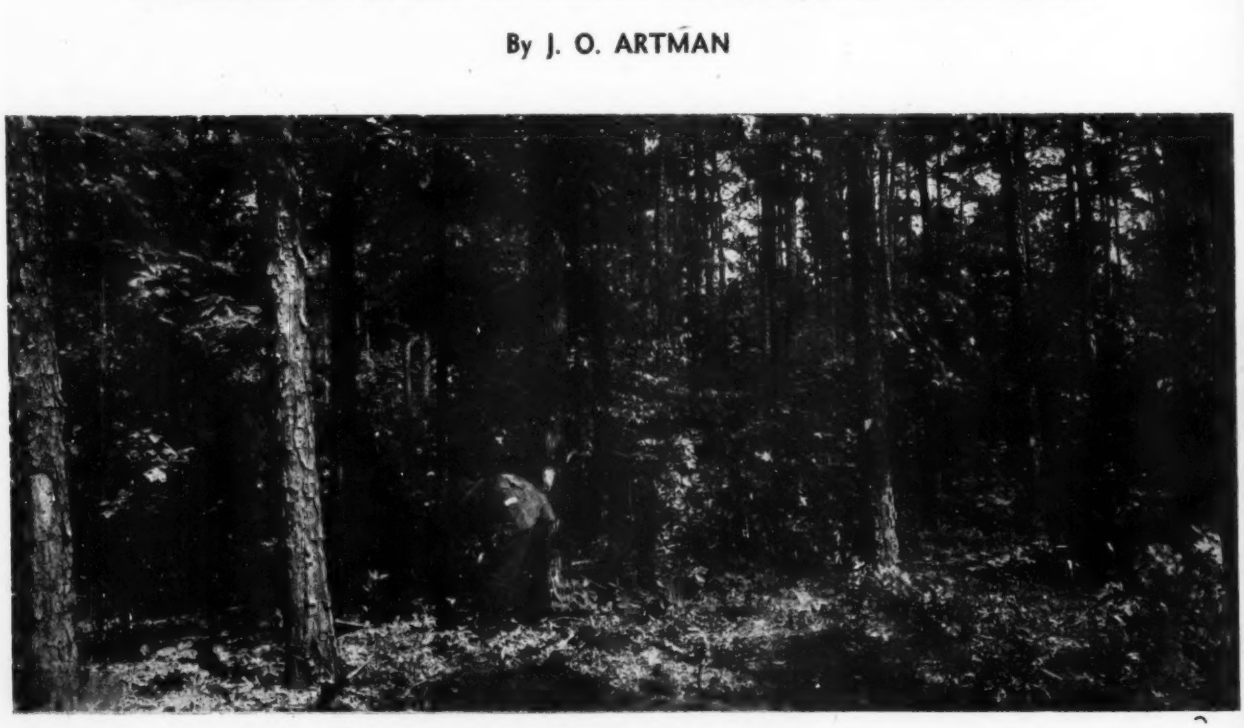
(*Turn to page* 362)

Where the Kern River, at 6000-feet elevation, sings along through wide, green meadows shaded by firs and pines. A wilderness paradise

WAYNE COUNTY SHOWS THE WAY

How the People, Industry and Government are Working Together Down in Tennessee to Restore and Stabilize a Badly Depleted Forest Resource

By J. O. ARTMAN



THE people in Wayne County, Tennessee, long subjected to the inequities of forest exploitation, finally have broken with the past, taken stock of their remaining timber resources and proceeded to better a situation that at one time seemed hopeless. They have, significantly, demonstrated what can be accomplished when the "grass roots" processes are put in action.

Tennesseans can be proud of Wayne County. Progress made there in forest conservation has been equaled in but few sections of the South. The people have risen in righteous wrath and demanded that forest fires be stopped. Many farmers are now managing their woodlands on continuous production principles. A sawmill man recently refused to buy a tract of good timber because the owner wanted to cut everything and leave nothing for a future harvest. One lumber company, which owns 70,000 acres of land, has made a drastic reduction in its cutting budget and adopted a policy of *growing* timber. Such things are revolutionary in this section of America.

Although Wayne County is the second largest in the state, it has relatively little good farmland. Eighty percent of its 471,000 acres is now in timber, and agriculturists say that the amount of open land will probably never exceed thirty percent of the total. There are no railroads in the county and only the trunk highways are paved. Clifton, 200 miles up the Ohio and Tennessee Rivers from Cairo, is the shipping point for most of the river traffic. The county's 13,600 residents are classified as rural. Waynesboro, the county seat and largest community, has a population of only one thousand.

Timber buyers discovered the valuable hardwood stands of the area about 1890, and during the thirty-five years that followed billions of board feet of choice poplar (tuliptree), hickory, chestnut and oak were cut and barged to St. Louis, Cincinnati and New Orleans. The operators gave no thought to the future and were little concerned about the welfare of the county. It was their policy

to buy land and stumpage cheap, skim off the cream, and move on. By 1928 the better hardwoods were gone and the loggers turned their attention to pine, which up to then had been considered worthless. The pine harvest lasted only ten years.

Only cutover remnants of the once unbroken timber stand remained in 1940, but still one out of every two of the county's able-bodied men worked at least part time in the woods or in wood-using industries. In this one year, 23,000,000 board feet of rough lumber and 34,000 cords of fuelwood, valued at $538,000 were produced. Imagine what the production must have been "in the good old days" when it was not uncommon for a saw crew to work a whole day felling one huge tulip tree, and when 500 wagon loads of railroad ties arrived at the Clifton docks in a single day.

Accelerating the depletion begun by the loggers, forest fires annually took a heavy toll; and soil, shorn of its protective covering, was washed into the streams. Stand on any hill in the county and you can see the havoc wrought by man in his ill-advised conquest of Nature. If you are a sensitive person you can even now hear and feel the last stages of the battle still in progress. The hiss and crackle of flames creeping through the underbrush, the roar of flood waters, the ring of axes and the crash of falling trees, the scraping of plowshares on rocky hillsides—these are the echoing voices of destruction, diminished now in volume but still audible.

Old-timers say that forest fires have been bad as long as they can remember; their frequency rose and fell with the logging cycle. The State Division of Forestry first employed fire wardens in the county in 1924, but with limited funds and inadequate public support, little good was accomplished. C. E. Lance, when he became county agricultural agent in 1930, reported from one-fourth to one-third of the total forest area being burned each year. In his first annual work plan he recognized the seriousness of the situation by including forest fire prevention as one of his major objectives.

In 1940, a TVA forester, cooperating with the State Division of Forestry, moved to the county. For a year he traveled up and down the county giving lectures, showing educational movies on fire prevention, setting up exhibits and through various other mediums doing what he could to convince the people that the ruthless destruction of forest resources was bad for them, bad for the state, bad for the nation.

Eventually, he found, people began to notice woods fires for the first time. Some even acknowledged that they were damaging, that they were caused by carelessness or maliciousness, and, most important of all, that they could be controlled. They began to understand, too, that the state fire-control organization was inadequately financed and that its efforts would have to be supplemented by local action. Consequently, late in 1941, a group of interested landowners met to analyze the problem and plan a solution. Out of this meeting came the Wayne County Forest Protective Association, an organization of citizens dedicated to the task of protecting all of the forest lands in the county.

Soon after its inception, the association requested that the county court appropriate $450 to help finance one motorized fire-fighting crew. When the request was turned down, the association raised the money among its own membership and entered into a cooperative agreement with the state whereby its $450 was matched with state funds. A motorized crew was immediately organized and made responsible for fire control on 60,000 acres around the Waynesboro lookout tower. During its first season this crew fought twenty-seven fires; only forty-six acres were burned. The size of the average fire was reduced from seventy-seven acres to less than two acres.

Another lookout tower was needed in the southwestern part of the county, but the state did not have sufficient funds to build one. So the association went to a local lumberman and begged enough lumber and labor to build the tower. The state then supplied the

Key to the Wayne County plan is a citizen's organization dedicated to the protection of all forest lands. Above, a motorized fire crew, one of four now in operation — at right, fire prevention signs such as this have been erected along main highways

needed hardware and a construction foreman; and a job, which at first looked impossible, was completed in record time. Another motorized crew, jointly financed by association and state, was established at the new tower and 75,000 additional acres were receiving intensified protection.

All this furor about forest fires had its effect on the county court and finally, in 1943, that body voted unanimously to budget $1000 annually for fire control. This money, like that contributed by the association, was matched with state funds and two more motorized crews were activated. In only two other Tenessee counties have county funds ever been used to fight forest fires.

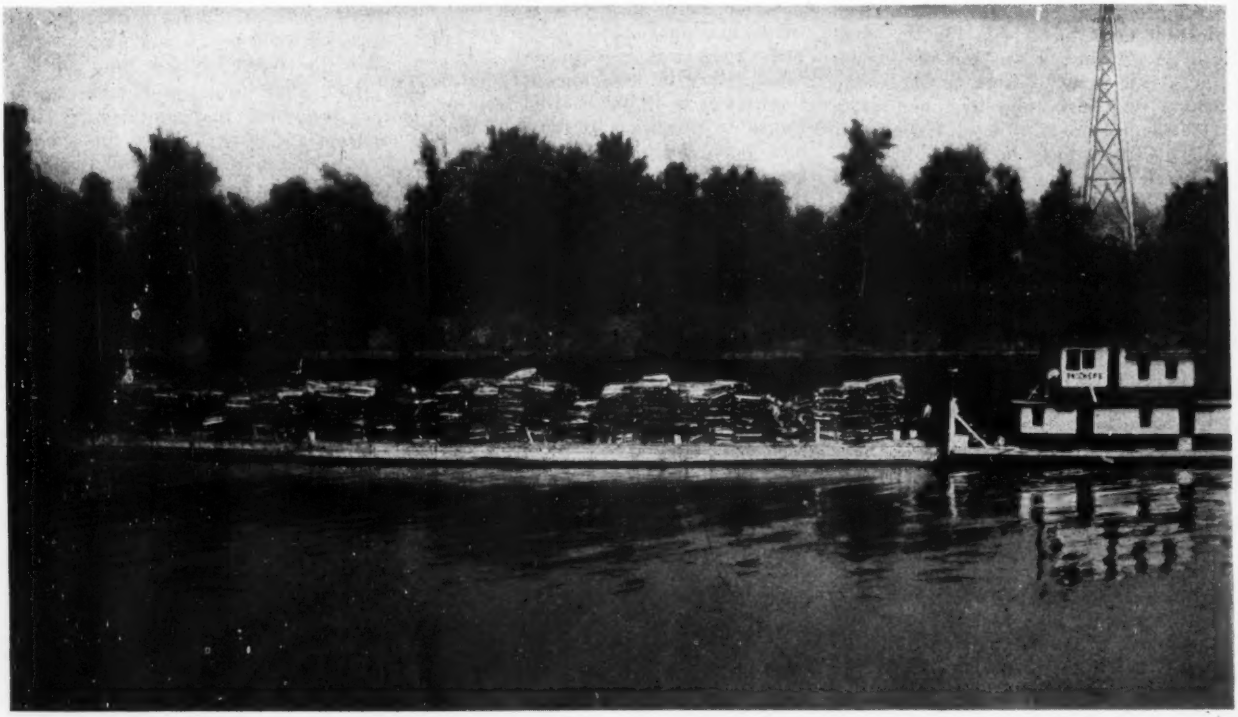
The fire-control organization in the county is now almost complete. Its annual budget has increased from $2000 to almost $10,000. Fire control funds, at first provided entirely by the state, are now provided by the state, the county and local individuals. At two fire danger stations fire hazard is measured daily in terms of wind velocity, rainfall and moisture content of the litter on the forest floor. Six lookouts in high towers keep constant watch for smoke, and four motorized crews are prepared to attack fires the minute they are discovered. Scattered over the county, twenty-one fire wardens are paid a small annual retainer to do prevention work. This streamlined organization cracked down full force in 1943 and the already vastly improved fire situation improved still more. During the five preceding years there had been an average of 150 fires each year; in 1943 there were only seventy-seven. The area burned was reduced from 12,000 acres to 3,000 acres, or less than one percent of the total forest land in the county. The goal of real protection is almost achieved.

Public interest in fire protection has increased accordingly. Driving from Waynesboro to Centerville one day recently, the writer picked up a trapper on his way to town to sell pelts and buy food. He was very loquacious, and after the conversation had drifted through trapping and the Scriptures, he launched into a homely sermon on forest conservation, winding up with: "Mister, I would shoot my own brother if I caught him firin' the woods."

County Judge Roy Haggard summed it up pretty well when he related his own reactions to forest fires. He said that he had long recognized the need for better fire control in the woods but had doubted seriously that public opinion would sanction it. He was agreeably surprised at the progress made in the past three years. "When the court appropriated county funds to fight forest fires," he said, "I was all set for a lot of criticism from the people, but not one single voice was raised against it. We haven't much tax income in this county and we have to keep pretty tight control on the budget. We're satisfied, however, that this expenditure for fire control is one of the best investments we could make."

Public interest in other forest conservation practices increased as fire control improved. When John Dial planted the first pine seedlings in the county in 1931, his neighbors were skeptical. They said that anyone who would plant pine "sprouts" on his farm "ought to be bored for a simpleton." Those trees are now fast approaching merchantable size and more than 126,000 additional seedlings have been planted on eroding hillsides by the former skeptics.

In 1942, the county agent began talking to farmers about woodland management, telling them that the woodlot was just as much a part of the farm as the cropland and that it could make a valuable contribution to the farm income. A few farmers caught the idea and helped set up woodland management demonstrations on their farms. S. E. Martin, who owns a small farm on the headwaters of Roanoke Creek, is a typical example. He decided to sell his timber and asked a local sawmill man to



One out of every two able-bodied men in Wayne County works at least part time in the woods or in wood-using industries. Here a barge loaded with chestnut moves down the Tennessee River to a tannin extract plant

make him an offer. After examining the woodland, the buyer said he could give $650 for all of the timber, but cautioned against selling it that way. "Go see the county agent," he advised. "A lot of these trees are too young to cut. I'll buy whatever the foresters mark and pay you on the basis of their estimate."

The outcome of this advice was another farm woodland demonstration. A forester estimated the timber and recommended cutting less than a half of the total volume. The fast-growing young trees of good form and species were left to put on more board feet. The sawmill man kept his word and paid Martin $450 for the marked trees. His previous offer, based on cutting everything, would have meant an average stumpage price of six dollars a thousand feet; he actually paid nearly eight for the marked trees. By cutting selectively, the owner got a better price for his timber and insured another harvest in the near future.

Ten such demonstrations, involving more than 2000 acres of farm woodland, have been set up so far, and 2,500,000 board feet of timber has been selectively marked for cutting. This timber, which is being removed to *improve* the woodlands, is also providing critically needed wood for war uses and income for the farmers.

When the farm woodland demonstration program was started, Gordon Jenkins, the vocational agriculture instructor at Waynesboro High School, saw an opportunity to teach forestry to his farm boys. An interested timberland owner gave him a forty-acre tract of cutover pine and hardwoods and the boys went to work. They have already marked the boundaries of the tract, set up a stand improvement test plot and sold some fuelwood. Future plans call for growth study plots, fertilizer test plots and reproduction plots. The popularity of the project is affirmed by the fact that many of the boys who have gone into the armed services ask for news of the school forest when they write home.

High school students — farm boys — work in their own forest

The value of leaving good seed trees is demonstrated by a Wayne County lumberman. Though recently cut over, another crop of pine is rapidly developing

Ralph Hughes, president of the Hassell & Hughes Lumber Company, has probably done more for forest conservation than any other one person in the county. "Back in the days when I was selling automobiles," he confessed, "I saw woods fires every year and thought little about them one way or the other. But when I got interested in timber it didn't take me long to see the damage early loggers had done, and to realize that the lumber business could never get better until fires were stopped."

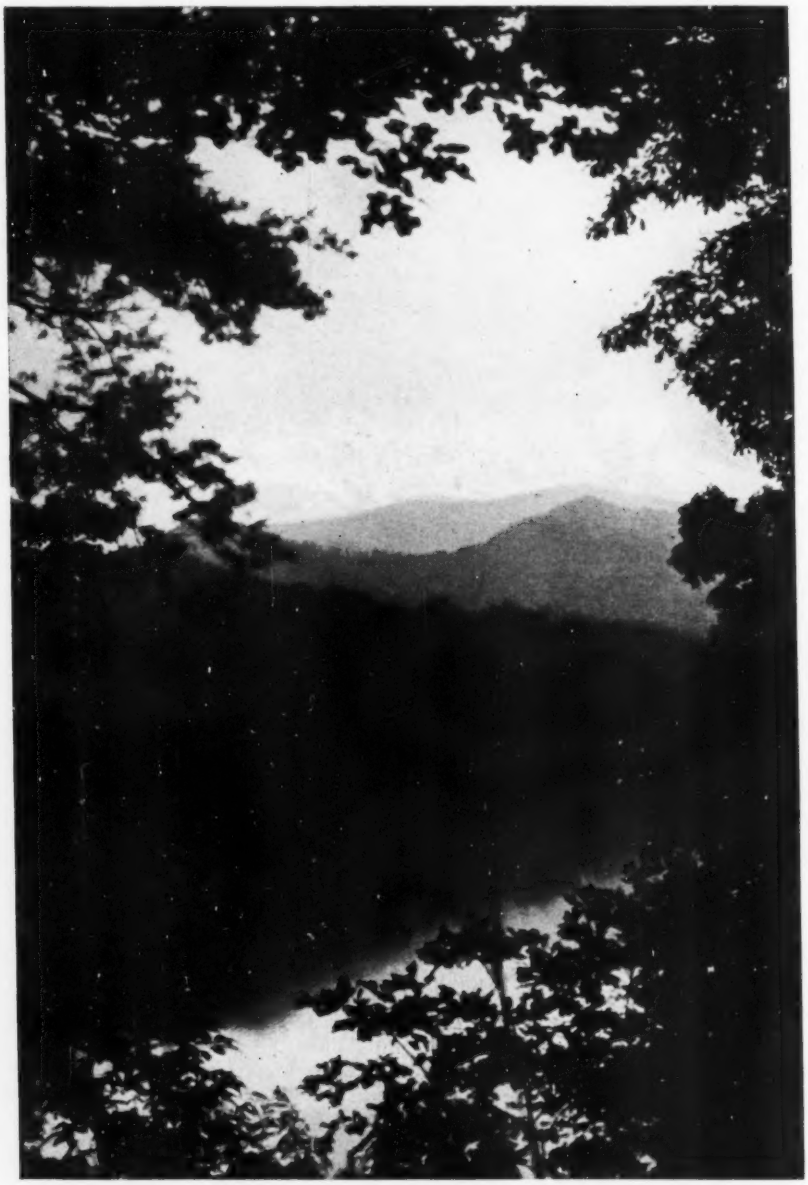
It was Hughes who instigated the Wayne County Forest Protective Asso-

(*Turn to page* 368)

Nantahala . . . LAND OF THE NOONDAY SUN

By DOROTHY FERRELL HAYDEN

DO YOU know where a ravine is called the "Land of the Noonday Sun," because its rocky walls are so steep that the sun's rays penetrate to its full depth only when they are directly overhead? The answer is the Nantahala National Forest, an all too little known land of towering, tree-clad mountain slopes and terrifying downward-swooping gorges in North Carolina.



Looking toward the heart of the Nantahala National Forest—a world of tree-clad mountain slopes and downward-swooping gorges

The forest lies contiguous to the southern boundary of the great Smoky Mountains National Park, extending from there east to within an hour's drive of Asheville, and south and west to the Georgia and Tennessee state lines respectively. It is a land rich in history and Indian lore, in majestic drives and a multitude of playground areas; it is a region abounding in good hunting and fishing for the sportsman. Best of all, the truly great scenic and recreational wealth of the forest is so located that, under normal conditions, it is within easy access of the populous southeastern quarter of the country.

So numerous are the activities within the confines of the Nantahala they can barely be more than mentioned in a short article. In one area, important streamflow experiments are in progress, while in other localities there are such entirely different primary objectives as the protection of wildlife native to the region, soil conservation and flood control. Not to be overlooked is the program of timber production: in the Nantahala National Forest there is now a stand of some 6,000,000 board feet of marketable timber.

These practical values are only one side of Nantahala's many attractions. Between Franklin and Highlands there is a paved highway through the forest which for a distance of almost twenty miles follows one of the most scenic routes in eastern America. Delicate, lovely Bridal Veil Falls crosses the road, the cars running under and behind the descending water. On windy days, spray from this mountain waterfall is blown back against the faces of driver and passengers.

Only a short distance upstream from Bridal Veil there is a continuous roar as the Cullasaja River races in a foaming current down its boulder-strewn bed to lose altitude rapidly by plunging over a series of steep, terrace-like rock formations.

Passing alternately white water and placid pools, the highway leads directly to Dry Falls where the river makes a breath-taking vertical plunge into the

(*Turn to page* 364)

One of the many beautiful waterfalls in this former land of the Cherokees. Bordering the Great Smoky Mountains National Park, it is within easy access of millions of people

ANOTHER ENEMY FLANKS THE ELM

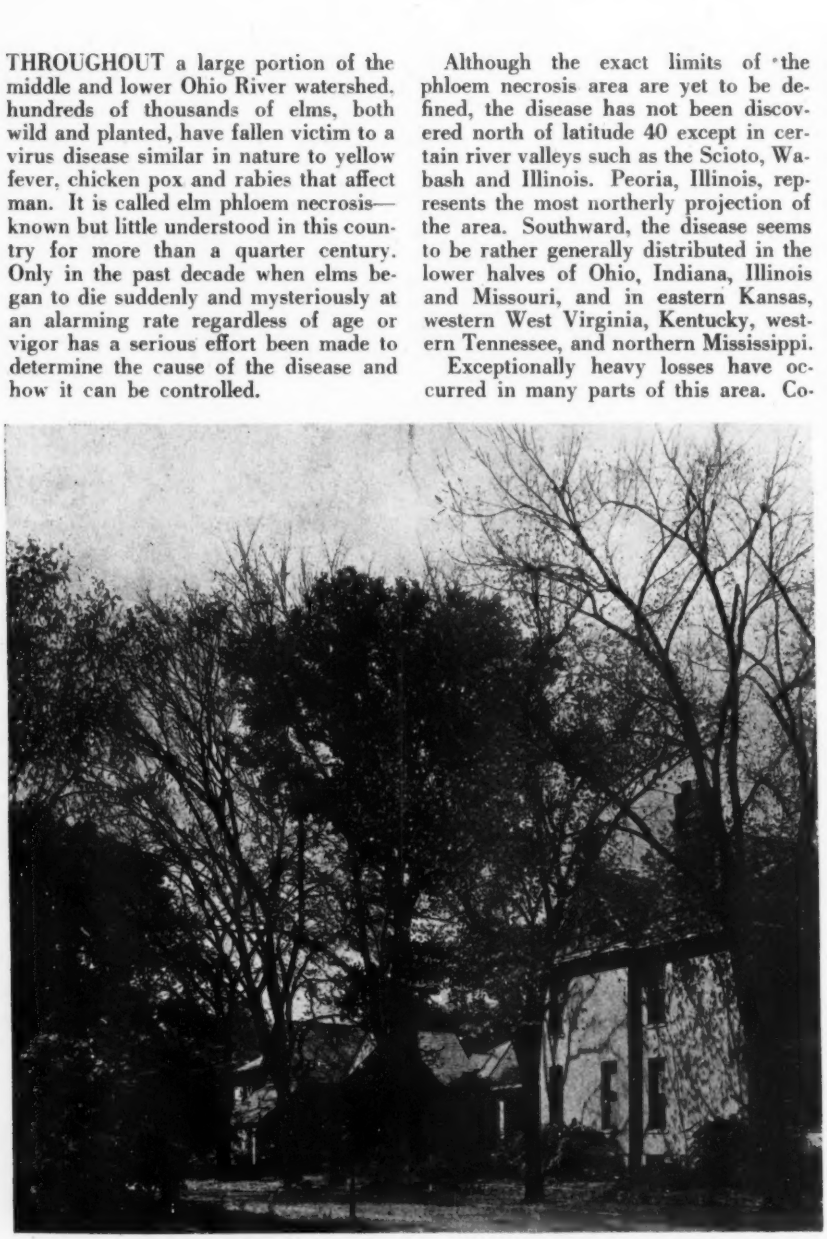
Phloem Necrosis, a Virus Disease Similar in Nature to Man's Dreaded Yellow Fever, Is Taking a Heavy Toll of American Elms in the Midwest

By ROGER U. SWINGLE

THROUGHOUT a large portion of the middle and lower Ohio River watershed, hundreds of thousands of elms, both wild and planted, have fallen victim to a virus disease similar in nature to yellow fever, chicken pox and rabies that affect man. It is called elm phloem necrosis—known but little understood in this country for more than a quarter century. Only in the past decade when elms began to die suddenly and mysteriously at an alarming rate regardless of age or vigor has a serious effort been made to determine the cause of the disease and how it can be controlled.

Although the exact limits of the phloem necrosis area are yet to be defined, the disease has not been discovered north of latitude 40 except in certain river valleys such as the Scioto, Wabash and Illinois. Peoria, Illinois, represents the most northerly projection of the area. Southward, the disease seems to be rather generally distributed in the lower halves of Ohio, Indiana, Illinois and Missouri, and in eastern Kansas, western West Virginia, Kentucky, western Tennessee, and northern Mississippi.

Exceptionally heavy losses have occurred in many parts of this area. Columbus, Ohio, with more than 80,000 elms, lost 15,000 during the three-year period from 1941 to 1943—and 10,000 in 1944. At Dayton 20,000 elms were reported killed last year. Serious but lesser losses occurred at Indianapolis, Peoria, St. Louis, Kansas City, Charleston, West Virginia, and many other localities in the disease area.



The deadly virus has claimed more elms than the Dutch elm disease. Here are a few of the 10,000 trees killed in Columbus, Ohio, last year

The mere removal of these dead trees imposes an excessive burden on the city and property owners. Local arborists have estimated the cost of removing trees killed in 1944 alone at a half to three-quarters of a million dollars.

So far, elm phloem necrosis is known to affect only the American elm. However, a dying of the winged elm which seems to have been due to the same cause has been observed at Jackson, Mississippi. The Moline, vase and hollyleaf elms, all varieties of the American elm, have proven to be especially susceptible to the virus. Unfortunately, the Moline and vase have been widely used by midwestern municipalities in street plantings.

Some affected trees appear to die very suddenly. Although often apparently healthy and vigorous, such trees may succumb within a few weeks. When this happens, the leaves decline gradually over a two- to four-month period. Foliage throughout the entire crown changes color slowly, progressing from normal green to pale-green, then to yellow-green, and finally to yellow. Progressive defoliation accompanies the changes in color until all leaves are shed and the tree is dead. Occasionally affected trees live over winter and produce small, light- or yellow-green leaves the following year. Foliage of these trees remains small and becomes yellow, and the tree usually dies by midsummer or early August. The elms invariably die; there is not a single case on record where a tree has recovered after the virus disease has become established in it.

Decline in the top of affected trees is accompanied by a progressive dying of roots. In fact, dying begins in the small, fibrous roots even before disease symp-

toms appear in the top; and it progresses into larger roots until the entire root system is killed.

Elm phloem necrosis is distinguished from other tree diseases by the presence of a yellow to typical "butterscotch" color, frequently flecked with brown or black, which develops in the inner bark of large roots and the lower trunk. This color is confined to that portion of the bark lying next to the wood. It first appears in the roots and spreads upward into the trunk, and occasionally may reach the branches before the tree dies. The moderately discolored bark tissue has a faint odor of wintergreen. This odor can be detected by separating a small amount of the discolored tissue from the rest of the bark and confining it for a short time in a small, stoppered vial or the closed hand.

Elms suspected of having phloem necrosis should be examined for this typical discoloration of the inner bark and for the wintergreen odor. For this examination, make a small chisel-cut through the bark at the base of the trunk or on buttress roots, so the bark lying adjacent to the wood can be seen. If the inner bark is white the trouble is not phloem necrosis. If the tissues are a distinct yellow or "butterscotch" color, bark samples should be removed and examined for odor. Sometimes this is difficult to detect, especially in cases where the "butterscotch" color is very pronounced and insects have begun to invade the dying tissues.

When this is the case, the odor can often be detected readily in bark specimens taken from higher up the trunk. In sampling for bark symptoms, however, care should be taken not to confuse inner bark discoloration with a superficial, reddish-brown color, which develops on the inner surface of elm bark that has been exposed to the air for a few minutes. The discoloration produced by phloem necrosis is present *at the time the tree is sampled.*

First discovered at Ironton, Ohio, in 1918, elm phloem necrosis several years later was observed at Dayton and Cincinnati—and at Huntington and in the Tug Fork River Valley of West Virginia. Subsequent investigations indicated that the disease was not new but had occurred in parts of Kentucky, Indiana and Illinois for many years prior to its discovery. Furthermore, it seems that this disease was probably responsible, at least in part, for an epidemic dying of elms that occurred in the Kentucky River Valley of central Kentucky prior to 1900.

Its cause remained obscure for many years. Protracted drouth periods, high soil alkalinity, toxic gases and soil solutes, fungi, "borers," and a rather ambiguous "running out of the species" were some of the theories advanced to explain it. In 1936, following an epidemic outbreak at Chillicothe, Ohio, in which about half of the city's trees were dying, the Bureau of Plant Industry of the United States Department of Agriculture began studies designed to determine the cause of the disease and how it could be controlled.

After three years of research the causal agency was found to be a virus that could be transmitted from diseased to healthy plants by grafting. The mode of transmission under natural, field conditions still remains unsolved but observations on spread of the disease and information on other diseases of similar nature suggest that an insect is responsible. Investigations are now in progress by the Bureau of Entomology and Plant Quarantine to determine the insect or insects responsible for spread of the virus. (The phloem necrosis problem is being investigated cooperatively by the Bureau of Plant Industry, Soils, and Agricultural Engineering, in which the author is a member of the Division of Forest Pathology, and the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration—Editor).

No means for controlling elm phloem necrosis are known at the present time. Some possibilities are now under investigation but in view of the alarming spread of the disease and its extreme destructiveness in recent years, the need for accelerating and expanding these investigations is urgent. At Marietta, Ohio, where the disease appeared in 1943, the United States Department of Agriculture is cooperating with city and state officials in an experiment to test the disease control value of early removal of diseased trees, both inside the city and in a barrier zone a mile beyond the city limits. The experiment is designed to attempt control of both elm phloem necrosis and the Dutch elm disease, the latter occurring also in the vicinity of Marietta. Experiments are also being undertaken to test the possibility of controlling the disease by spraying, emphasis being placed on DDT, the new insecticide.

The development or selection of desirable type elms resistant to phloem necrosis for replanting purposes seems to offer considerable promise at the present time. A few desirable, shade-tree type American elms are known to have survived in some areas where the disease has occurred for many years. Preliminary resistance tests on seedlings and clones of some of these survivors have been very encouraging and there is hope that resistant planting stock will become available within a few years. To save our "elm avenues" of today, however, there is urgent need for more information on the disease and how it spreads, species of trees affected, whether some apparently resistant species may harbor the virus and thus serve as a source of infection to their susceptible neighbors, and the protective or curative value of newly developed chemicals applied as sprays or internal medication. The outlook for control of the disease is promising but further research is needed to answer the many perplexing, unsolved problems that this destructive disease presents.

The "butterscotch" colored phloem is revealed when the inner bark near the base of a diseased tree is exposed

HE STOLE 12,000,000 ACRES

By OREN ARNOLD

PART II—(*Conclusion*)

WHEN the Court of Private Land Claims reaffirmed the legality of Don James' "Barony of Arizona," he went right ahead developing his 12,000,000 acres. The United States judge to whom Tom Weedin reported said nothing publicly, for the time being. "Just go home and keep quiet, Tom," he ordered. "Let me handle this thing."

The baron's agents brought in fifty heavy wagons and more than 400 mules to haul logs. These would be used to make railroad ties, building timbers for bridges and mines, lumber for homes and stores. Then, as now, lumber was valuable in the Arizona cities, because most of them are on the desert a hundred miles or more from the forest supply. But Don James Addison de Peralta-Reavis, "Baron of Arizona," had established legal claim to most of what is now the Apache and Tonto National Forests, plus a part of another. He was already rich and getting richer. Months passed, and then one day a federal officer walked up to the magnificent baron, snapped handcuffs onto him and spoke a few crisp words.

"Reavis, the jig's up."

It was up, truly.

Tom Weedin, the printer with a hobby of studying old documents, had broken the most amazing case of its kind in American history.

Dona Sofia Loreto, the Indian "baroness," beside the rock marking the boundary of the "barony"

Excitement spread about the Territory like a prairie fire, when people heard that the baron was arrested. Many were so sold on him by now that they felt he was being framed. About half of the loggers and teamsters, for instance, who had been sent to his forests, quit their jobs and came to town to attend court, ready if necessary to fight with guns for their employer. That was good but mistaken loyalty.

In United States Court at Santa Fe, New Mexico, Uncle Sam challenged the baron with certain facts that the courts had lacked before. And, truly, what was it that stuttering Tom Weedin, the printer who had a hobby of reading old documents, had whispered in the judge's ear that day?

"T-There's one paper," Tom had said, excitedly, "which is d-d-dated in Madrid, Spain, 1748. But the t-t-type—the type that printed it wasn't invented until 1875!"

"Tom! No!" His Honor was astounded.

"Y-Yes sir! And another one—i-it's dated 1787 in Madrid, but it was a w-w-watermark from a W-Wisconsin paper mill that wasn't even started until after our C-C-Civil War!"

For months, then, federal agents had conducted a new investigation, this time with detailed thoroughness. They went all the way to Mexico City, thence to Madrid itself. Not until they had returned and were ready did the judge clamp down on Baron James. At first that worthy was indignant, furious, threatening. Then he did all that a whipped man could do—broke down and confessed, then plead for mercy. His signed confession is available for students to read today. His story is without parallel anywhere.

When, some years before, the impecunious Jim Reavis of Missouri, chucked his job and disappeared, his name disappeared too. He wanted no further connection with woodcutting days, earning barely thirty dollars a month. He had told friends that he yearned to be a Spanish grandee in the Southwest. But he went first to San Francisco, a booming town, and got himself a job as roving reporter for a newspaper.

With credentials for that paper he "borrowed" money here and there and headed for Mexico, thence Spain. Before leaving, though, he found an Indian girl, a waif who had been adopted into a white family. She happened to be light-skinned, as Indians go, and lovely of face and figure. Jim Reavis stole her, talked to her at length about her ancestry—which he built up in a truly romantic way.

"I have been investigating your past," said he. "You are not Indian at all, You are Spanish. You are the legal heir of a once-famous California family, and I can prove it."

Of course the girl was interested, and excited. Jim entranced her, then had a friend perform a fake marriage ceremony, and departed toward Mexico.

They lived a gay life for a while, then

The Amazing Adventure of "The Baron of Arizona"

Jim began the most incredible build-up for fraud that anybody could imagine. In the streets of Mexico and later in Spain, he learned Spanish well. He dug into ancient libraries, studying the idiom of forgotten days. He probed old curio shops and bought miniatures, oil paintings, some of them well done, of people whom he said were his wife's ancestors. The girl, no part of his fraud, believed literally everything that he told her.

"This is your great-great-grandmother," he would say, of one picture which he had found. "She has your eyes, Sofia."

But he also hired street scribes, and in the sunshine dictated long, leisurely documents, to be written and sometimes printed on the heaviest paper that he could buy. This paper he would leave in the sun in order to give it the appearance of age. When it was ready, he would go to the monasteries where legal documents had been stored for centuries.

"I am an American newspaper writer," he told the monks. "Could I do some research in your ancient records, in order to write a book about Spain?"

Of course he could. He had credentials (faked). He had a personal charm. The monks were glad thus to accommodate an American journalist, and so they opened old creaky doors and showed him the musty tomes of yesteryear. They'd leave him there with lantern or candles for hours at a time.

When they left, he would turn to the proper dates in a box or volume of court records, tear out some real ones and insert the papers that he had cleverly forged!

One day a monk hovered near him. Just stood around, visiting, offering to be of service. Jim Reavis couldn't get rid of him. So, Jim fell over in a sudden "faint."

"*Por Dios!*" the frightened monk exclaimed. "The foul air in this vault has sickened him. I must go for help!"

That was exactly as Jim planned. The monk ran away. Jim jumped up, made his substitution as before, stuffed the discarded old papers into his boot tops, and lay down "unconscious" again. The monk and two helpers came back and revived him with wine and water, then carried him to fresh air. Jim was ever so grateful.

Thus it was that he altered the sacred records in two nations, to confound the monks there and the first investigators whom we sent trailing him. It was like a thing from fiction, an imaginative detective tale. But the facts came out clearly in our federal court.

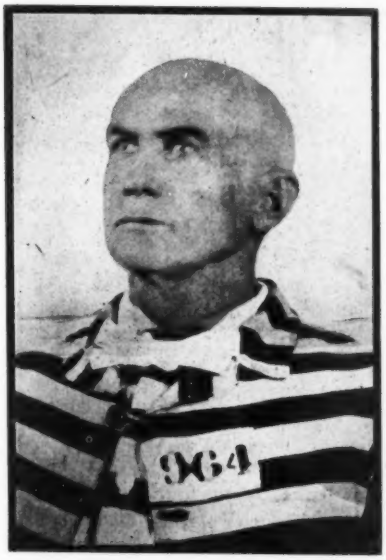
Mrs. Reavis—she whom he called Doña Sofia Loreto—took the witness stand. "We were never really married, I realize now," said she. "And I'm sure I really am an Indian, not a Spaniard. But I believed him until you brought me here. He was very kind to me. I loved him, and he loved me. I don't know what to do."

When his conviction became evident, she divorced him and proudly went to earn a living for herself and her twin sons. Last record we have of them is that she was working as chambermaid in a hotel—she who had once "owned" 12,000,000 acres and been entertained at an ambassador's ball! It is said that her twin sons are still alive, respected business men in New Mexico, anxious to keep the past quiet. But what of the man in her life, Don James?

Strange indeed are the vagaries of American nature. For perpetrating the greatest fraud on record, Jim Reavis perhaps should have been hanged, or given a life sentence. But, good or bad, he was a charming man. He had a strong political following, and many personal friends. The jury in that court sentenced him to prison for only *six years!* What's more, pressure was continued, and he served but two.

For years afterward he was still prominent in the Southwest. Many elderly folk remember him well to this day. He was seen in Phoenix in 1910, and still talked freely about his "Andalusian beauty, Doña Sofia Loreto" who had divorced him, even though never really married. He wrote of her, too. "Her features were exquisite," one document of his reads. "Her eyes are large, and of darkest hazel. A profusion of black and silken hair hung to her waist when I married her. The delicate lines of her body, and her exquisite grace and fascination, told of noble ancestry. She was of splendid physique, elastic step, and a superb dancer."

Photographs of her tend in some measure to bear him out. One such, taken years later beside the rock which marked the western boundary line of his "barony," shows her to be too heavy. Another in her Spanish finery shows her lovely indeed. The ex-Don James liked to talk of her to any one who would listen.



For his fantastic fraud, Reavis, the bogus baron, served but two years

In Phoenix, older citizens recall, he tried after his prison days to promote several enterprises. He wanted to establish three big lumber mills in Central Arizona, and said he could promote the money for it. He wanted to dig an irrigation canal from the Colorado River to central Arizona—a "fantastic" enterprise which, in 1945, bids fair to be realized as soon as peace returns, for it is now held wholly feasible. He tried writing for a living, and lecturing, and ranching. None of these things succeeded. People helped him with money for a while, but he dissipated it on fruitless "schemes" of minor nature.

And so, at long last, fate took a sardonic crack at him. Jim Reavis, who soared to become Don James Addison de Peralta-Reavis, then dropped to plain Jim again, had to "go to work for a living." And at what? You guessed it; he was seen swinging an ax in a forest.

Too old to last at that much longer, he disappeared once more. There is some evidence to show when and where he died, but this has not been fully substantiated. Probably he would like to be remembered as a mystery man any way, so imaginative was his nature.

But by way of epitaph, we can quote a very factual statement from William M. Tipton, the government man who headed the investigation that finally convicted Don James. Said he, "No plan of fraud was ever more ingeniously devised, none ever carried out with greater patience, industry and skill."

Mr. Tipton said that in 1896, and it still holds.

THE FAST GROWING FORESTS OF ARKANSAS

By ARTHUR M. EMMERLING

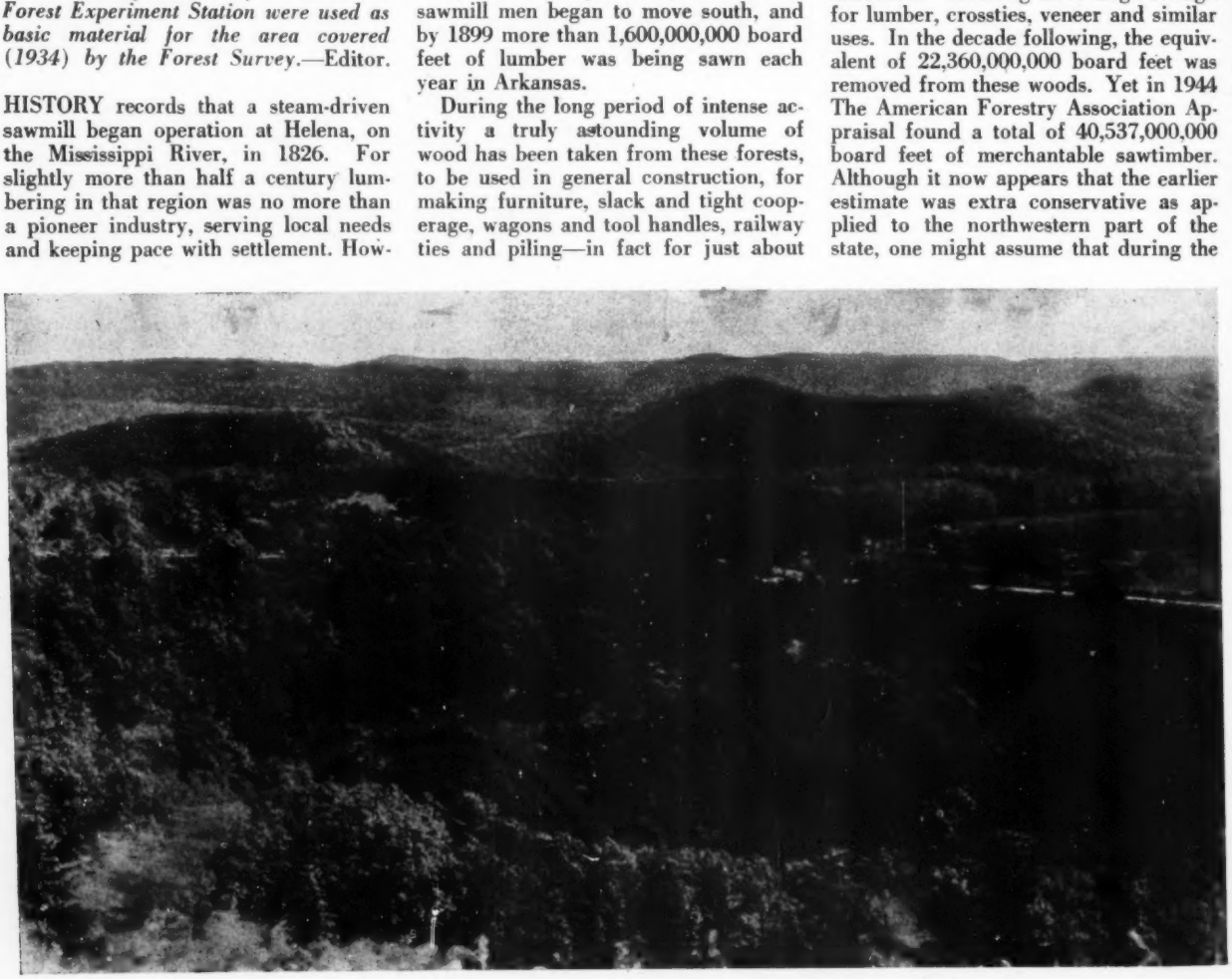
The forest resource appraisal in Arkansas was directed by Arthur M. Emmerling, regional consultant, and the author of this article. Contributors of technical or other services and data included the Bureau of University Research of Arkansas University, the Arkansas Game and Fish Commission, the U. S. Forest Service (Ouachita and Ozark National Forests and the Crossett Experimental Forest), the Arkansas Agricultural Extension Service, the U. S. Soil Conservation Service, and the Division of Forestry and Parks of the Arkansas Resources and Development Commission. Volume data published by the Southern Forest Experiment Station were used as basic material for the area covered (1934) by the Forest Survey.—Editor.

This article previews the findings in Arkansas of the Forest Resource Appraisal of The American Forestry Association. Rhode Island was presented in September 1944, Michigan in May, and Indiana and Colorado in June of this year.

HISTORY records that a steam-driven sawmill began operation at Helena, on the Mississippi River, in 1826. For slightly more than half a century lumbering in that region was no more than a pioneer industry, serving local needs and keeping pace with settlement. However, in the early 1880's, Lake States sawmill men began to move south, and by 1899 more than 1,600,000,000 board feet of lumber was being sawn each year in Arkansas.

During the long period of intense activity a truly astounding volume of wood has been taken from these forests, to be used in general construction, for making furniture, slack and tight cooperage, wagons and tool handles, railway ties and piling—in fact for just about every purpose known. It is likely that an even greater volume has been used as fuel, mostly within the state, for cooking and heating. It is known, too, that numberless trees have been "deadened" by girdling or felled and burned in piles to clear land for agriculture. Leaving such wasted material out of our picture, it probably is true that considerably more timber has been harvested for *use* in Arkansas than was standing in the state when lumbering began.

The United States Forest Service estimated that in 1934 Arkansas woodlands contained 36,793,000,000 board feet of sawtimber—meaning trees large enough for lumber, crossties, veneer and similar uses. In the decade following, the equivalent of 22,360,000,000 board feet was removed from these woods. Yet in 1944 The American Forestry Association Appraisal found a total of 40,537,000,000 board feet of merchantable sawtimber. Although it now appears that the earlier estimate was extra conservative as applied to the northwestern part of the state, one might assume that during the



The mountains of northern Arkansas normally produce mixed hardwoods and shortleaf pine

past ten years overall sawtimber growth has exceeded drain. As further discussion will indicate, this is not quite true.

When explorers visited the "Country of the Arkansaw," they encountered a formidable wilderness of vast river bottoms, frequently inundated, of rolling benchlands and rough mountains, the whole thickly covered with age-old forests in which were represented most of the tree species found east of the Rocky Mountains. Through this jungle, broken only by streams and an occasional prairie opening, and infested with wild beasts, serpents and insects, red savages moved by dugout canoe and afoot, seeking game or warring upon their neighbors.

Settlers found this a not always friendly land, what with floods and fevers and sudden, destructive winds. Even today, after 140 years of civilized occupancy, only slightly more than one-third of the state's surface is being farmed. Yet no one can travel across Arkansas without becoming conscious of its tremendous growth potential; the well-nigh overpowering promise of sun, rain and soil. And possibly most impressive of all are the evidences of the growing power of trees.

For purposes of description, Arkansas may be divided into four parts. The delta region is a corridor which lies along the Mississippi River and contains the lower reaches of several important streams. Strangely enough, a terminal moraine occupies the middle of this area, with small rivers traversing its length and larger ones on either side. The south Arkansas Piedmont is a gently rolling benchland, laced with a few fairly wide strips of bottomland. West of Little Rock, a triangular shaped region of rough Ouachita Mountains forms the source of the river of that name. In the north is the relatively high Ozark plateau, characterized by deep canyons and abruptly rising hills.

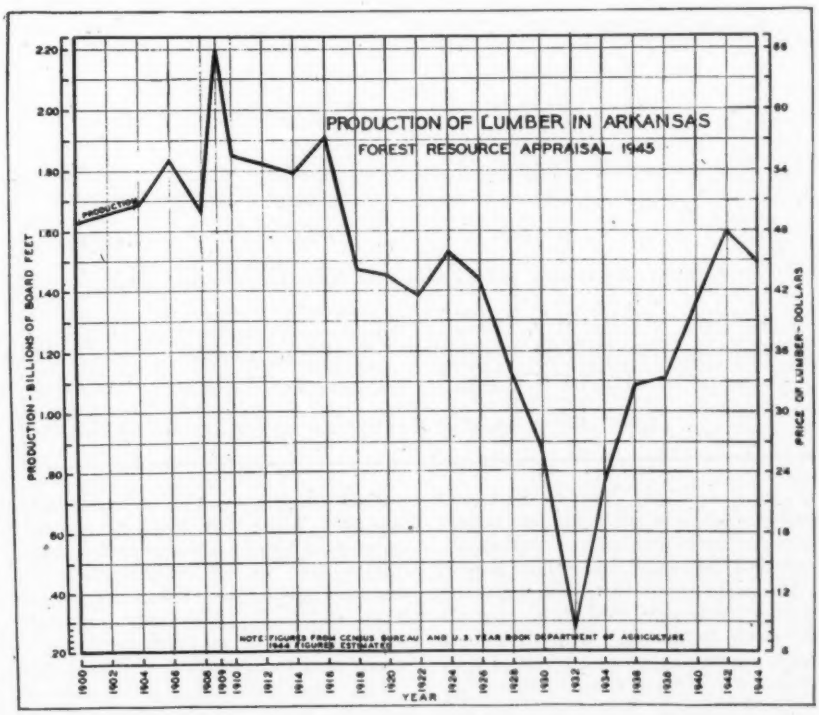
The deep alluvial soils of the delta produce tupelo gum and cypress and the so-called bottomland hardwoods, by which is meant mixtures of hackberry, elms, cottonwood, willow, bitter pecan and ash. Upon the benchlands of the moraine, and to westward, timber stands contain pin, willow, cow, water, post, red and overcup oaks; red and black gum, most of the hickories; elms and blue beech.

While these two types occur also in the larger stream bottoms, and upon the lower benches of the Piedmont, the predominant species mixture in southern Arkansas is pine-hardwoods. Both loblolly and shortleaf pines are found in abundance, mixed with such deciduous trees as white, black, post, and red oaks, red gum and hickory. In this region there is also a great number of pure pine stands, often the result of farm field abandonment.

A selective harvest of pulpwood—loblolly pine in Garland County

The shortleaf pine-hardwood type, which occurs in the Ouachita Mountains, differs from the mixtures described above in certain interesting particulars. Since the range of loblolly pine appears to stop near the northern edge of the Piedmont, that pine species is not important here. In addition to various oaks, red gum and hickory, there are walnut, cherry and maple. Most of the hardwoods grow less rapidly here than farther south and east. Shortleaf pine is found in pure stands, some being considerable remnants of the "forest primeval."

Local foresters and others well acquainted with these forests frequently combine the Piedmont and Ouachita areas, speaking of this entire region as the "Pinery." The apparent reason is that here is the source of most of the


PRODUCTION OF LUMBER IN ARKANSAS
FOREST RESOURCE APPRAISAL 1945
PRODUCTION
PRODUCTION - BILLIONS OF BOARD FEET
PRICE OF LUMBER - DOLLARS
YEAR
NOTE: FIGURES FROM CENSUS BUREAU AND U.S. YEAR BOOK DEPARTMENT OF AGRICULTURE
1944 FIGURES ESTIMATED

High production indicated by chart prior to 1924 was largely sawn by big mills from old-growth timber. On the upturn following the slump of 1932, small mills and second growth became increasingly important

state's remarkable pine production. And it is worth noting, too, that nearly half of this woodland, or more than 4,000,000 acres, is under careful management.

Moving northward one comes upon other forest types. Upland hardwoods vary according to quality of site and exposure, the more valuable mixtures being found on north slopes and in deep sheltered valleys. Here, in addition to the usual hill and benchlands known farther south and southeast, are certain more northern trees, such as hard maple, butternut, basswood and yellow poplar.

Also in the Ozark Plateau are mixtures of poor hardwoods, designated as scrub oak-scrub hardwood. This is not so much a natural type as a result of close cutting of original stands followed by repeated burning. Where soils are thin and moisture scanty such deterioration is a serious problem for the forester. Already 722,000 acres of land in northern Arkansas is in this unfavorable category.

There are no large cities in Arkansas, yet 2,000,000 people dwell here, surprisingly evenly distributed over the state in large and small settlements, on farms and plantations. At least 1,000,000 Arkansans live by farming. One-third of the others are supported by wages from forest industries, mining, manufacturing, construction and transportation, while almost all other wage earners and professional people live by trading with or supplying services of various kinds to their fellow citizens on farms and in the cities and towns. In point of value of its products, forestry stands next to agriculture.

The total land area of the state is reported to be 33,648,370 acres, of which 11,895,652 acres is regularly used for crops or improved pasture, and 509,901 acres has been taken over for cities, towns, highways, railroads and other rights-of-way. There are 6,238,451 acres of woodlands on farms or owned in connection with farms, and 13,814,475 acres of non-farm woods. Thus there is found a total of 20,052,926 acres of forests in the state. In terms of regions, the delta contains 3,966,025 wooded acres: the Piedmont 6,231,693 acres, the Ouachita highlands 3,413,883 acres; and the Ozark plateau of northern Arkansas 6,441,325 acres of woods.

Since this forest acreage represents nearly two-thirds of all the open land in the state, there may naturally be curiosity regarding ownership. The facts are presented in Table No. 1 at left.

It is surprising that such a great area is found to be in other ownerships than farm, forest industries, or public. In both the pinery and Ozarks it is chiefly made up, presumably, of comparatively few large ownerships wherein forestry is not an important objective, and many smaller investment or speculative holdings. Among the larger are mineral and oil properties and private preserves. The smaller are mostly the investments of business and professional people who some day will sell or manage them. The extraordinarily large area of such holdings in the delta is due in part to the inclusion of much bottom forest in costly drainage projects long in advance of clearing.

Wood-using industries and Uncle Sam own forty percent of the pinery, while farmers hold nearly twenty-five percent. In the Ozarks, farmers own forty percent, and nearly sixteen percent is in a national forest, while industrial owners have only a tenth of the forest area. Delta planters have thirty-six percent of the forest land, while industry people own but ten percent and less than five percent is in public holdings.

These facts become significant when it is explained that the treatment of woodlands varies widely among the several classes of owners. From careful sampling it has been estimated that fewer than 1,000 farmers are consciously handling their woodlots according to even the simpler forestry principles of conservative cutting and fire prevention. The acreage enjoying such care is believed to be less than one percent of the farm-owned woods. More than 6,000,000 acres of such forests are subjected to unrestricted periodic removal of everything saleable, and only one farm woodland acre in three is given organized fire protection.

Industrial owners display a notably different attitude toward forest management. It is estimated that twenty-five owners are practicing *intensive* forestry upon more than 2,000,000 acres, while fifteen others are observing standards

Table No. 1—Forest Area and Ownership

Region	Total area	Farm Owned	Industrial	Public	Other
Pinery	9,645,576	2,256,213	2,500,000	1,391,844	3,497,519
Ozark	6,441,325	2,558,551	650,000	1,015,673	2,217,101
Delta	3,966,025	1,423,687	350,000	164,334	2,028,004
Acres	20,052,926	6,238,451	3,500,000	2,571,851	7,742,624

Table No. 2—Estimated Areas in Sawlog and Cordwood Stands and Reproduction

Region	Total forest Acres	Sawlog stands Acres	Cordwood stands Acres	Reproduction Acres
Delta	3,966,025	2,245,211	622,861	1,097,953
Piedmont	6,231,693	4,074,225	842,229	1,315,239
Ouachita	3,413,883	1,862,265	498,799	1,052,819
Ozark	6,441,325	3,681,785	486,152	2,273,388
Total	20,052,926	11,863,486	2,450,041	5,739,399

Table No. 3—Volume Estimates by Regions

Region	Sawlog stands Sawlog volume M. Bd. Ft.	Cordwood in Sawlog stands Cords	Cordwood in stands Under sawlog size Cords	Cordwood Total volume Cords
Delta	8,600,098	11,675,097	1,930,869	13,605,966
Piedmont	20,161,725	26,482,462	4,295,367	30,777,829
Ouachita	5,611,481	9,870,750	2,094,956	11,965,706
Ozark	6,163,719	5,774,445	1,222,868	6,997,313
Total	40,537,023	53,802,754	9,544,060	63,346,814

Table No. 4—Comparison of Growth and Drain of Sawtimber

Region	Sawlog Area Acres	Sawlog Growth M. Bd. Ft.	Sawlog Drain M. Bd. Ft.
Delta	2,245,211	4,371,938	4,354,284
Piedmont	4,074,225	13,085,716	13,426,610
Ouachita	1,862,265	2,537,209	2,611,063
Ozark	3,681,785	2,001,068	1,970,974
Total	11,863,486	21,995,931	22,362,931

Table No. 5—Income and Expenditures, State Fire Districts, 1944

District	Total Income	Severance Tax Rcpts.	Clarke-McNary Contribution	Other Contributions	Expended
South	$224,146.00	$79,080.00	$ 89,418.00	$55,648.00	$232,180.00
East	21,063.00	8,886.00	11,177.00	None	3,725.00
Northwest	26,270.00	9,100.00	10,290.00	6,880.00	40,039.00
	$271,479.00	$98,066.00	$110,885.00	$62,528.00	$275,944.00

that may be called *extensive* forestry upon 500,000 acres. It is further reported that really destructive harvesting is being practiced upon less than one percent of industrially owned acres.

Small mill operators and pulpwood contractors still buy timber from ignorant or uncaring farmers and other owners, in lump sum purchases. And such stands all too frequently are harvested without thought for another cutting. Lands being cleared for agricultural use are similarly ravaged. Presumably many of the privately-owned forests classed as non-farm and non-industrial are being abused. Yet it is possible that the greater number of such holdings are simply being left to increase in value through the passage of time.

Public forest lands are in several categories, chiefly federal, including a considerable residue of public domain, a large game refuge, and slightly more than 2,250,000 acres of national forests. In general the publicly-owned woodlands may be said to be enjoying protection from fire and from excessive tree harvesting. The national forests have been under conservative management for forty years; too conservative, according to some foresters, who point out that public primeval stands are actually losing volume by excess of decay over growth.

Fire control with a "cat-plow." Ordinary ground fires will not cross this fire line

In any ten year period there are other changes than growth and drain in the forests of such a state. Poorer fields are "turned out," to be planted to trees by nature and occasionally by man. Land hungry farmers clear the forest from fertile soils and so add "new ground" to their cultivated acreage. In a long settled locality the trend usually is toward increase of woodland through farm abandonment, while in pioneer country the primeval forest recedes as fields increase and multiply.

Parts of Arkansas have been settled long enough so that hill soils are wearing thin, while along the major streams there are very large aggregate acreages of densely forested land which has never known the plow. So it is not strange that both farm abandonment and clearing are going on. In the eastern Arkansas delta, where soils are admirably adapted to large-scale farming, clearing has accounted for a net reduction of forest area during the past decade of more than 600,000 acres, or about sixteen percent.

Showing woodland owners how to harvest their tree crop. More of this kind of education is sorely needed in Arkansas

In the southern Piedmont there has been activity in both directions, affecting probably 500,000 acres altogether, yet the net effect has been to decrease the forest area less than two-tenths of one percent. Chiefly through farm abandonment the woodland acreage of both the Ouachita and Ozark regions has been materially increased, a matter of several hundred thousand acres altogether. For the state as a whole it is believed that the forest is smaller by only about 57,000 acres than in 1934.

After ten years of area additions and subtractions, the yearly volume increments through growth and the drains of harvesting; "deadenings," fire, insects and disease, one may reasonably inquire regarding the character of forest that is left. As to forest types, it is estimated that only one and a half percent of the woodland area is gum-cypress, while nineteen and a half percent is under bottomland hardwoods and twenty percent supports benchland hardwoods. Pure shortleaf pine occupies eight percent, southern Arkansas pine-hardwoods ten percent, and shortleaf pine-hardwoods eleven percent. The most extensive type is upland hardwoods, which accounts for twenty-six percent of the forest area. Foresters agree that four percent in scrub oak-scrub hardwoods is more than is desirable.

Obviously not all the stands may be classed as sawlog or sawtimber. (Stands containing 500 board feet or more an acre of merchantable sawlog material, in round pines or nine inches or more breast high diameter or hardwood trees twelve and a half inches d.b.h. and up. Trees must produce one eight-foot butt log or yield fifty percent its gross volume in saw material to qualify. Cedar trees are called merchantable if containing one six-foot log three inches in diameter at small end). Table No. 2 on the opposite page shows estimated areas in sawlog stands, also in cordwood class (containing minimum of two cords of sound merchantable wood in tree stems five inches and up d.b.h.). Reproduction class includes all areas stocked with trees of small size, and of insufficient per acre volume to qualify in either of the merchantable classes.

Of equal interest is the volume estimated to be present in each region, presented in Table No. 3. Sawlogs are measured in logscale (International ¼ inch kerf). At the same time an estimate is given of cords of wood (Stand-

ard 128 cubic feet) in stems of smaller trees in sawtimber stands. A third estimate of cords in stems under sawlog or cordwood stands indicates the importance of these partly grown forests. Reproduction is mostly too small to justify attempted volume measurements.

In the state as a whole the total timber volume is made up of twenty-nine percent shortleaf pine; twenty-two percent loblolly pine; eleven percent red, black and tupelo gum; nine percent other pulping hardwoods, such as cottonwood, willow, tulip poplar; twelve percent red oak; ten percent white oak; ash and hickory three percent; and the other hardwoods four percent. Regionally, eighty-one percent of the timber of the Ouachita area is pine, in the Piedmont fifty-nine percent is pine, while in the Ozark pine composes forty-five percent of the stand. Hardwoods predominate in the delta and pine is negligible.

While this species breakdown deals with total volumes, it is believed to be equally applicable to sawtimber, which actually composes 82.3 percent of the total volume. In addition to cordwood in tree stems, it is estimated that more than 60,000,000 cords of wood is present in limbs and unmerchantable stems. This volume of wood is wholly ignored because there is no present or immediately foreseeable market for it.

The assortment of age and size classes present in Arkansas forests deserves comment. More than half the forest area is classed as sawtimber, while slightly more than an eighth is in the next smaller cordwood class. This means that much of the current growth can be realized upon in the near future, since it occurs in stands containing merchantable sawtimber; is, in fact, being added in large part to sawtimber trees. The large area of reproduction will become economically important twenty to thirty years hence, while trees in cordwood stands should begin to reach the lower margin of merchantability in from ten to twenty years.

For appraisal purposes, Arkansas was divided into four parts

The relationship between growth and drain over a considerable period is the only trustworthy indication of the status of forestry in any locality. Most illuminating perhaps is a comparison of growth and drain in terms of sawtimber. Table No. 4, on page 340, is presented for Arkansas, and covers the decade 1935-1944 inclusive.

Thus it is to be seen that eastern Arkansas has accounted for nineteen percent of the drain, while the southern Piedmont has contributed sixty-one percent of commercial timber produced. Ouachita and Ozark regions produced eleven and nine percent, respectively.

Viewed in their relationship to present sawlog volumes, these figures show interesting effects of rapidly rising production which began in 1933 and continued through 1942. In the delta, production was slightly less than the percentage of standing timber, but in the Piedmont where half the sawtimber is standing, output was boosted to more than six-tenths of the state total for the period. In both mountain regions production percentages were considerably less than those of standing sawtimber volumes.

Statistics obtainable in 1942 show production of 1,600,000,000 board feet of lumber, including sawn ties. Hewn ties to the amount of 8,053,000 board feet were made from sawlog timber. Material cut into cordwood for fuel, pulping and chemical wood was reported as 354,554,000 board feet of sawtimber. Nonlumber uses such as veneers, cooperage handles, posts, poles and piling bring the total to more than 3,000,000,000 board feet of sawtimber material. Drain upon cordwood stands was estimated as 2,472,776 cords of fuel and 795,000 cords of pulpwood.

One may declare that the forests of Arkansas have demonstrated their power to maintain a yearly output of sawtimber in excess of 2,000,000,000 board feet, and a yearly production of smaller cordwood far greater than present markets will absorb. The basis of such a declaration is the record of the past decade. But of course the situation is not so simple as that.

About twenty years ago there was a rapid reduction of big mill operation in the state. After nine or ten years of drastically lowered output, timber cutting again assumed important proportions. In the interim millions of trees twelve to fifteen inches in diameter, which big mill operators had regarded as too small to cut, had grown in size and volume. Portable mill men and pulpwood cutters gladly took trees of such size, in fact they now went after smaller ones. So it appears that recent production has consumed much of the leavings of earlier loggers and has even eaten dangerously into the younger stands.

What of the future? In the delta there is much good agricultural land now under trees which because of high taxes and drainage assessments cannot long be held for tree growing. However, under improved forest management the present rate of wood production could be sustained upon two-thirds of the present forest acreage. Whether it will be so maintained remains to be seen.

In the Piedmont there must be a slackening of drain to permit recovery and rehabilitation of stands. Here the situation is most critical. Yet it is probable that the forest area will increase and that management, already at a high average, will be improved still more, or at least applied to an even larger acreage. And some of the operators here will be obliged to stop for lack of timber to cut. Because of past heavy cutting, the area of reproduction is large. Thirty years hence this young growth may be increasing sawtimber volumes.

Both mountain regions are susceptible of marked improvement in growth increment with forest management. In fact the most notable need in these parts of Arkansas is for education of farmers and other non-forest industries owners regarding proper handling of woodlands. This great tree-growing region is marking time, and should be put to work.

If state-wide drain continues during the next decade as during the past, and if management does not improve, there will be a greater net loss for the period than has occurred since 1934. However, by permitting production to decline by as much as fifteen percent, with a reasonable improvement of land management, this net loss could be transformed into a gain.

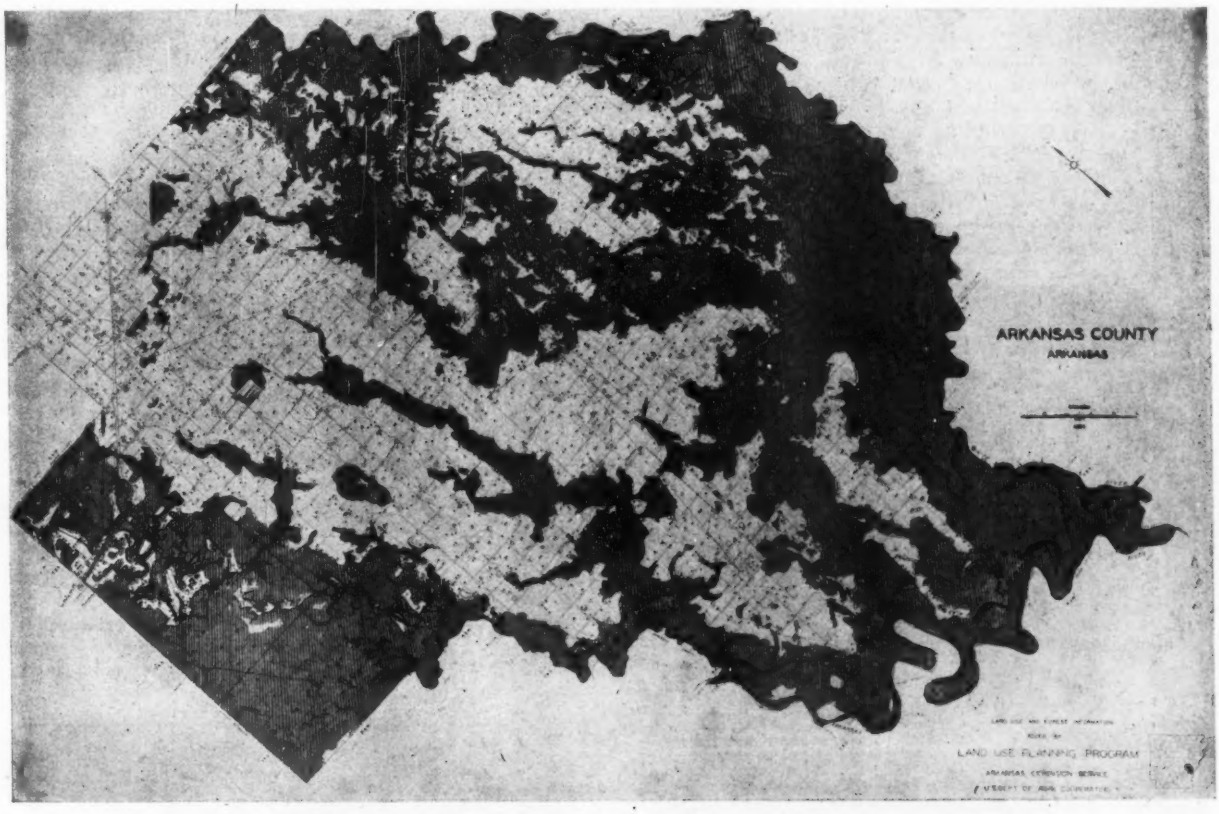
More extension foresters are needed. In the past ten years the Arkansas Forestry Commission has expended $17,500 for management instruction as against $6,000,000 for fire protection. For the past sixteen years the Arkansas Extension Service of the U. S. Department of Agriculture—in cooperation with the University of Arkansas—has maintained *one* extension forester to work with county agents to promote timber management, among other things. With seventy-five counties to cover, he could spend slightly less than five days per county per year, if he traveled at night and missed church every Sunday! Yet four out of every ten farmers are interested and say they wish to learn what to do with their woods. Not even one farmer in ten has ever had a chance to learn.

Of the seventy-five counties in the state, twelve have no organized fire protection. Eight of these are in eastern Arkansas. Efforts were made in 1937 to 1939 to organize units in these counties, but landowners were not sufficiently interested to continue making even nominal contributions to such projects. And because severance tax returns and other sources of income declined sharply, the commission gave up its efforts to continue protection in these counties.

In northwest Arkansas there is lack of interest in protection. Here again, education is needed. The tabulation of 1944 income and expenditure (Table No. 5, page 340) shows where the sentiment favoring protection is centered.

During the five year period ending December 1944, there were 22,482 fires on all areas protected by the state, exceeding 10,000,000 acres. Total area burned over was 667,161 acres, or 1.294 percent a year. During the same period there were on the two national forests and intermingled other lands, aggregating 3,830,000 acres, a total of 1,396 fires, which burned over 20,851 acres, or less than one-tenth of one percent a year. Such figures are valuable chiefly to show that Arkansas forests can be protected if funds are made available. It is believed that the job can be done for about five cents an acre a year, which is not a great deal more than is now being spent.

Except in the drainage district areas, taxation is not now a barrier to forestry. However, Arkansas law permits a staggering variety of assessments, and there is no assurance that things may not become worse in any county at any time. Tax delinquency usually is related to agricultural values rather than forestry. In this, as in most other respects, it should be stated that Arkansas needs intelligent leadership in her government. She also needs greatly increased facilities for teaching small landowners how to manage woodlands. Her growth potentialities are enormous, but the balance is precarious as matters now stand.



Bottomland and bench hardwoods in Arkansas County. White areas are farms

FIRE-FIGHTERS MUST EAT!

Los Angeles County Solves the Problem of Getting Hot, Nourishing Meals to the Fire Line

By R. H. WILLIAMS

IT has been wisely said that the best tools in the world are only as good as the men who operate them. This is especially true in fighting brush and forest fires, for despite the development of new and effective equipment, fire control is still largely a matter of manpower.

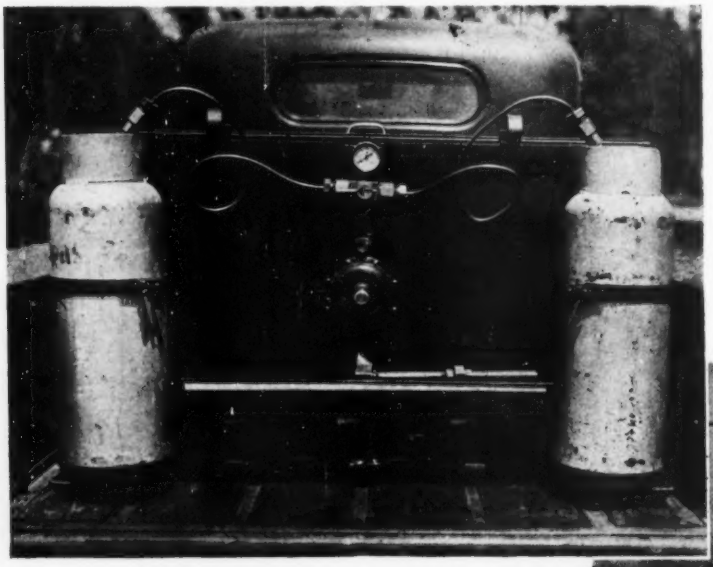
Yet, while much thought and effort have been given to perfecting tools and machines for the fire line, little has been done to improve the physical comfort of the men who operate them. This, despite the fact that few physical activities are more exhausting than fighting fire. As a case in point, fire fighters in most instances receive little or no nourishment between the time of their departure from and return to the base fire camp. This is because the feeding of men on fire line duty has largely been a hit and miss affair. But at the same time it is well to keep in mind that adequate feeding presents one of the toughest problems encountered on the fire scene. The reasons for this are varied, ranging from the size of the fire to the nature of the terrain. If the fire is a large one and located on sectors remote from the base camp of operations, the problem of feeding the men on the line will tax the resourcefulness of the ablest supply officer.

The Los Angeles County Department of Forester and Fire Warden, keenly aware of this situation, has taken steps to alleviate it by developing a portable unit, based on the steam table principle, that will insure hot, nourishing meals for the fire fighters while on actual fire line duty. This unit, of skid type, is designed for easy handling and use on a half-ton pickup truck capable of carrying food and the necessary equipment for serving approximately 100 men. No provision is made, of course, to prepare food. This is done at the main camp.

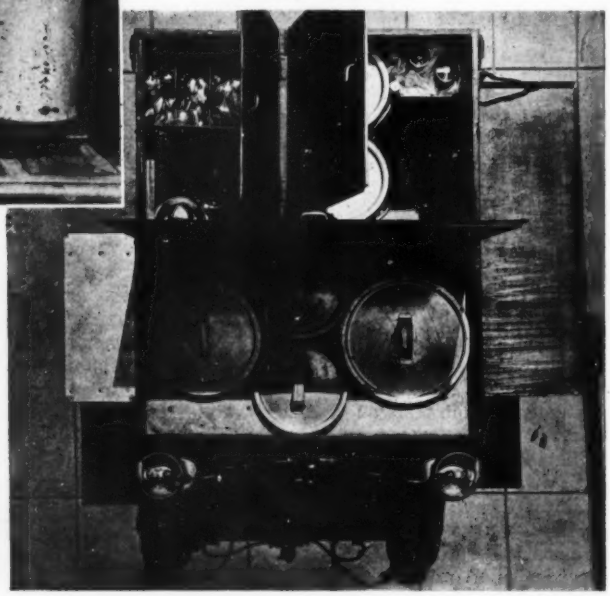
As will be noted from the illustrations on this page, one part of the unit consists of a hot-food compartment. This section, containing two three-gallon, one six-gallon and one nine-gallon stock pots, is double walled and innerlined with a half inch asbestos sheeting. The pots are submerged to about two-thirds of their depth in a chamber containing approximately twenty-two gallons of water. This chamber is provided with a splash plate and several baffle plates to prevent surge. It has been found by actual practice that more efficient results are obtained when this chamber is filled with hot water, maintained at the desired temperature by three gas burners operating off two nine-pound cylinders of propane gas.

The remaining half of the unit is divided into two compartments. One is insulated and contains two three-gallon stock pots for juices and storage space for bread, sugar, salt, and so on. The other compartment is equipped with necessary utensils, such as cups, forks, knives and spoons. Both have night lights connected with the truck electrical system. The overall dimensions of this unit are: forty inches wide; forty-eight inches long; and twenty-four inches deep. The unladen weight is approximately 400 pounds.

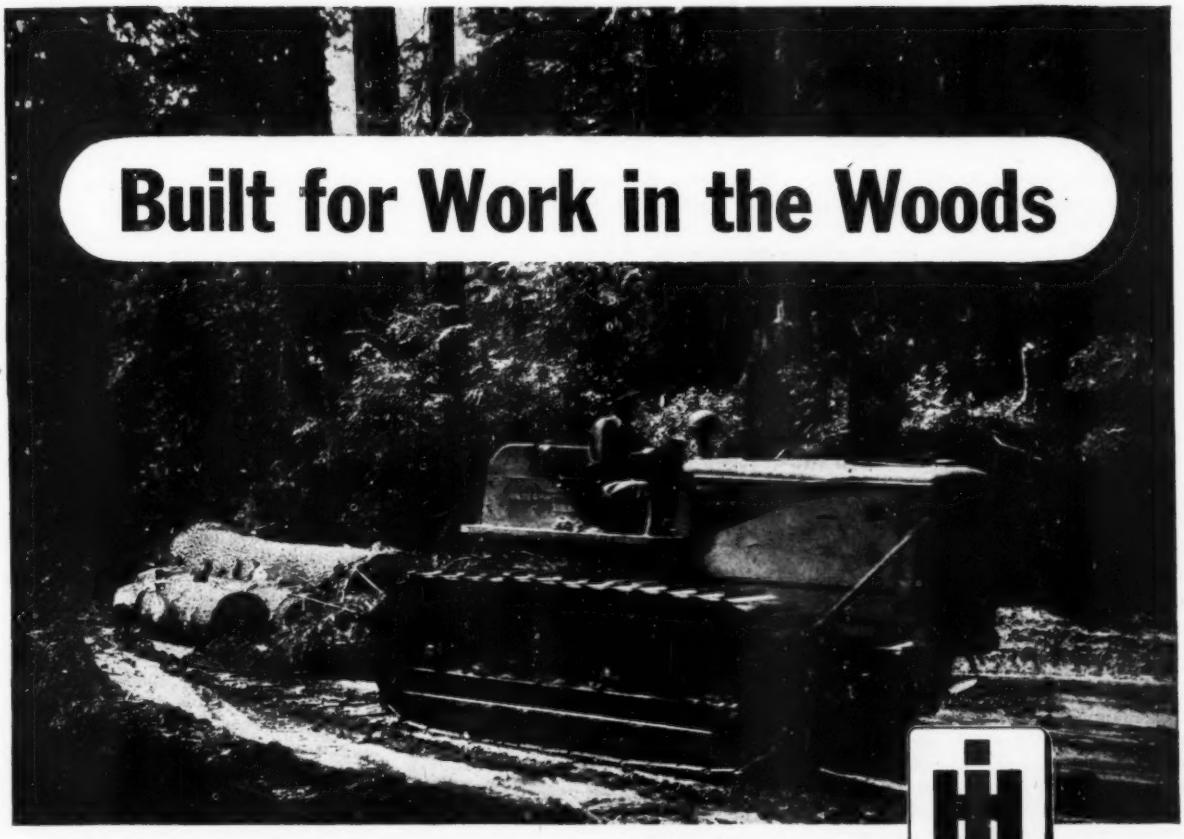
The department has used this unit on several fires with satisfactory results. Plans are now under way to construct an additional one.



Gas provided by these cylinders keeps food hot



Food compartment below, storage space above



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THE "COLD FACTS" ABOUT LUMBER

A LUMBER deficit of 8,000,000,000 board feet is predicted for 1945 by the House Select Committee on Small Business. Reporting on May 14 the results of its investigations of the present situation in lumber production, the committee stated that on the basis of the rate of production for the first five months of the year, but 30,700,000,000 feet are anticipated, along with 1,500,000,000 feet from importations and stock withdrawals, to meet military and essential civilian requirements of 40,000,000,000 board feet. Furthermore, it stated, the collapse of Germany is not expected to better the situation—will probably make it more acute.

In a lengthy statement titled "The Cold Facts On Lumber Production," the committee brought out that redeployment of troops and material from Europe to the Pacific theatre will demand enormous, but as yet undetermined, amounts of shipping lumber; that the anticipated increased tempo and extent of the campaign in the Pacific will step up considerably the requirements in that theatre for lumber of all kinds; that the needs for lumber of our basic war economy remain unchanged; and that if a smooth transition from wartime to peacetime economy is to be effected, certain minimum, but nevertheless considerable, lumber needs of the country's industries must be satisfied.

Major deterrents to production were listed by the committee as follows: Lack of proper numbers and quality of workers, particularly in the woods, constitutes sixty-five percent of the problem; difficulty in securing sufficient numbers and amounts of equipment and supplies, such as heavy duty tires, trucks and tractors, fifteen percent; weather ten percent; and failure of OPA price level adjustment to follow increased production costs in a major producing region, coupled with rail and other transportation shortages, stumpage deficiency in certain areas and financing difficulties, ten percent. Other factors, implicit in the manpower problem, are listed as absenteeism, labor pirating, inability to use prisoners of war to any great extent, wage competition with war plants, etc.

"If the deterrents can be partially removed, and positive, conscious encouragement can be furnished," the committee stated, "a possibility exists, not only of halting the decline in production, but of actually increasing the rate very considerably."

Pointing out that the log inventory in the Northwest is declining at an alarming rate and that more handling in the mills is needed to satisfy the lumber requirements facing the nation, the committee estimated that the industry needs approximately 123,000 additional men immediately. A systematic recruitment program by War Manpower Commission designed to furnish this number of men should be launched right away, it declared. "The industry sustained inordinately high losses to the draft because the loggers, particularly, showed up well in physical examination," it stated. "Also, the shipyards and other war plants with high wages drained off thousands."

The WPB Lumber and Lumber Products Division, the lumber advisers and Timber Production War Project men in the field have used every legitimate means of securing deferment of key workers, the committee revealed. The result has been that in the last two years possibly fifty percent of those key men who otherwise would have been drafted have been kept in place.

Absenteeism, according to the committee, has taken and continues to take an enormous toll in lessened production. No one knows how much. Efforts by the Timber Production War Project to correct this situation have resulted in some success, though of a temporary nature. The use of prisoners of war in lumber production, it was found, has been disappointing, mainly due to the high cost to the using company of establishing side camps; the inability in many cases to use as many as 200 prisoners; the possibility of their being suddenly removed to harvest perishable crops; and the "unchanged determination on the part of the War Manpower Commission to deny certification for use of war prisoners to those companies who do not pay at least a fifty-cent permissive wage. In many cases this is impossible because OPA price ceilings now in effect were based on production costs figured from wages lower than fifty cents."

The need for wage stabilization, particularly in the Northwest, was said by the committee to plague the industry and loss of numbers of workers is anticipated. "Owing to lack of prompt and vigorous enforcement of wage regulations by the West Coast Lumber Commission, occasioned by deficiency in numbers of field representatives, wages have gotten out of hand. The move now to roll them back to the legal level will cause widespread dissatisfaction and quitting of jobs.

"Another disturbing problem facing the industry is the anticipated enforcement by Wage and Hour Division of ruling on payment of travel time. Both future implications in form of increased production costs and the possible retroactive feature of the ruling deter operations from continuing in business."

As for equipment, the committee found that the lumber industry needs 17,000 tires to put trucks laid up for lack of them back on the road; 70,000 to replace those badly worn; and 26,000 a month from now on to satisfy replacement needs. Truck requirements for the lumber industry for 1945 were placed at 18,600 units. "Though these will meet essential requirements if they are actually made available, present indications are that the requirements will not be met," the committee stated.

The committee believes there is need for impressing individual owners, government forest land administering agencies and the Army Engineers with the necessity of making stumpage available in certain areas, if the mills are to maintain production. "In the past," it was stated, "many contacts by WPB field representatives have been made in this connection. Both the U. S. Forest Service and the Department of the Interior have been urged to depart from their principle of sustained yield and to award stumpage more frequently on a flat negotiated price basis in contrast to competitive bidding."

Commenting on the new Inter-Agency Committee on Lumber, established early in May by WPB Director Krug, and composed of representatives of the Army and Navy, War Labor Board, OPA, Selective Service System, War Manpower Commission and Office of War Mobilization and Reconversion, the committee had this to say:

"The question to be considered is whether or not the conclusions arrived at by the majority of the members of this new Inter-Agency Committee on Lumber can ever be put into effect by a series of directives binding upon the various agencies involved.

"The staff of the House Small Business Committee does not believe that this will take place, unless and until the Inter-Agency Committee is made a part of the Office of War Mobilization and Reconversion, the top agency with power to issue such directives to all agencies concerned. It is believed that an examination of the history of the short-lived Log and Lumber Policy Committee, the Inter-Agency Committee created in 1943, will support this conclusion."

POWERHOUSE *of the forest*

IN MODERN Paul Bunyan style, "Caterpillar" Diesel Tractors are responsible for logging production records scarcely dreamed of a generation ago. With arches, pans and winches — and with powerful motors and sure-gripping tracks — they handle heavy logs "like matchsticks"— gathering, hauling and loading with speed and economy.

Now they're also falling trees!

With the development of the electric power saw, "Caterpillar" Diesels are serving widely in a further way to facilitate log production and to relieve the manpower shortage of a hard-pressed industry. With mounted belt-driven generator, the "Caterpillar" Diesel Tractor becomes a powerhouse that can move itself right up to the mature trees to be logged and generate the electricity needed to send those ingenious saws zinging through their trunks. Bucking logs is similarly done in record time and at low cost.

What about new "Caterpillar" Diesels?

It will be good news to all of us when more "Caterpillar" Diesel Tractors, Engines, Motor Graders and Electric Sets will again become available for the peacetime industrial fronts instead of the war fronts. If you want to be among the "early birds" on deliveries, the wise thing to do is to see your "Caterpillar" dealer and "sign up" *now*.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

• Three "Caterpillar" Diesel D2 Tractors like the one below furnish power for two electric falling units and one bucking unit owned by J. Neils Lumber Co. Four D8's, with Hyster arches, do the snaking and skidding (500 feet to 1½ miles).

CATERPILLAR DIESEL

REG. U.S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

The discharged veteran wears this emblem. Remember his service and honor him.

A FOURTEENTH SON PRACTICES FORESTRY

J. W. Frost, a "Natural-Born Forester," Exhibits Sixty-Two Trees Over Two Feet Through on His 40-Acre Ohio Woodlot

By CAL STOTT

Farmer Frost and one of his big oaks. He still wonders at their rapid growth

WHEN a sixty-two-year-old fourteenth son spends a long day marking timber with the Timber Production War Project foresters, that seems to be news—good news. When he firmly insists on the marking and cutting of only the "jubrious" trees, no matter how large the "good growers" are that he prefers to leave, that is still better news.

J. W. Frost of Frost, Ohio, is that fourteenth son and, in addition, he is a natural-born forester, as was his father before him. Jim Seward, district ranger for the U. S. Forest Service at Athens, Ohio, and the writer unhesitatingly report Frost's woodlot to be one of the finest they have seen in their Timber Production War Project work. The thirty-acre remnant of timberland on the 290-acre Frost farm has been cut "fer a tree hither and yon" many times during the past seventy-five years.

"A carload of oak piling now—a 'shake tree' then—a few black walnuts—some barn timbers—and still today 118 trees, sixty-two of them over twenty-four inches in diameter, marked for cutting" will earn for Mr. Frost the degree N.B.F. (Natural Born Forester, earned in the school of hard woods work). More than that, he will be enriched by at least $1,000 without his turning a hand to the job. But you can bet your hat that he will be there to watch and make sure none of his 500 unmarked trees are cut. And you can be sure, too, he will tell the cutters how his team of oxen skidded a peeled oak piling tree to the iced slide on the hilltop, and because they didn't get "on-hooked" in time they went down the hill "one of 'em ridin' on the log and t'other on his tail."

No grazing in his woodlot—and no fires. The woods floor with its thick layer of firm leaf and twig litter is soft and spongy underfoot

"We cut large spreadin' oak on the edge of the lot so the cows wouldn't 'salivate' the acorns and go dry," said Frost musingly, as he contemplated the wonders of each tree in his woodlot. He knew most of them "when they wuz small saplin's" and wondered greatly at their rapid growth.

No grazing in his woodlot, "to keep the young 'uns from comin' forth," nor fires to sear the base of his loved ones, old and young alike. The woodlot floor with its generations of thick layer of firm leaf and twig litter and humus is soft and springy underfoot. Truly this fourteenth son has a woodlot of which one might well enjoy being a proud owner.

YOU GET ACTION—FAST—WITH FMC HIGH-PRESSURE FOG

THE FMC High-Pressure Fog Fire Fighter is the ideal equipment for checking fast-spreading grass, brush and forest fires.

And here's why! The equipment travels fast and carries its own water supply. You are ready to work *without delay,* the moment you arrive at the fire.

A little water goes a long way!

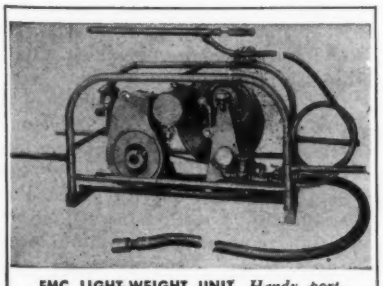
The high pressure provides a combination of high velocity and finely-atomized water—just what you need to *blast, cool and smother* flame. There's a heavy fog formation for thick foliage and ground debris, and a long-reaching power stream for top fires.

One gallon of this waterfog, properly used, has fire quenching possibilities many times those of low-pressure water.

Special units to meet your needs

In addition to the Standard FMC Fog Fire Fighter, we build light, medium and heavy duty outfits to meet special requirements. Capacities range from 6 GPM two-man portable unit to 60 GPM truck mounted outfits—pressures from 500 to 1,000 lbs.

Investigate! Write — *today* — for complete information.

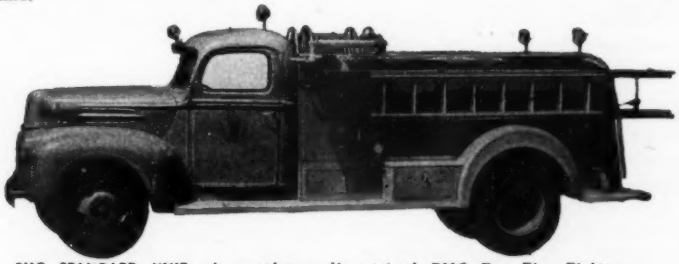


FMC LIGHT-WEIGHT UNIT. *Handy portable outfit for use on your own pick-up. Small in size but a giant for work.*

SPEED COUNTS! *A small brush fire like this may become a raging forest fire, in just a few short hours. It should be checked—in the early stages—with FMC High-Pressure Fog.*

FMC EMERGENCY UNIT. *Light in weight. Can be dropped onto a pick-up truck or trailer. Has a 100 gallon tank for water supply. Provides one gun of 8 gallons per minute at 500 lbs. nozzle pressure.*

FMC ALL-PURPOSE UNIT. *Medium weight. Can be installed on a medium-sized truck. Has a 300 gallon tank for water supply. Provides one gun of 20 gallons per minute at 600 lbs. nozzle pressure.*



FMC STANDARD UNIT. *A complete, self-contained FMC Fog Fire Fighter. Carries a 400 gallon water supply and complete fire fighting equipment. Provides two guns of 30 gallons each at 600 lbs. nozzle pressure.*

FMC *Original* HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

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BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

Around the States . . .

South Seeks $14,000,000 Fire Fund

Fourteen million dollars was set as the cost of protecting state and private forest lands in the South in preliminary estimates submitted by southern state foresters and fire control chiefs meeting at Lufkin, Texas, early in June.

The tentative budget set for the cost of fire protection on 176,537,477 acres of timberland was $14,210,515, four times the amount now spent. The expenditure would amount to about eight cents an acre.

The costs of adequate protection were determined by the following conditions as necessary to extinguish fires when they are small: Prompt detection of fire, quick dispatch of crews, sufficient and well-trained crews, enough modern equipment, a reserve of manpower and equipment to be furnished largely by cooperating landowners, and a forceful educational program.

The group agreed on a tentative plan for central research on forest fire fighting equipment to be conducted by the University of Alabama. It was recommended that high priority be given to development of a light fireline plow that could be carried in a pickup type truck.

Memorial Forest Program for Girl Scouts

In memory of Mrs. Herbert Hoover, twice their president, the Girl Scouts have established plans for setting up Lou Henry Hoover Memorial Forests and Sanctuaries in camps and other Girl Scout owned or controlled property throughout the nation.

The national board of directors of the Girl Scouts has appointed Mrs. Walter Rothschild of New York City chairman of the project.

Under the provisions of the plan, Girl Scouts may establish memorial projects by following these regulations: Boundaries or title of the land to be set aside as a memorial forest or wildlife sanctuary must be established; at least one year must be spent surveying the land to determine what already grows and lives there; a working list must be made of native animals and plants that might live in the sanctuary if proper conditions prevailed; Girl Scouts must work with Federal or State forestry or conservation departments or committees in planning local memorial conservation areas; a ten-year plan for the future of the project must be made and approved; and, finally, land designated as a Lou Henry Hoover Forest or Sanctuary must be posted properly against hunting, fishing and the disturbance of trees and plants.

The first Lou Henry Hoover Memorial Sanctuary and Forest to be certified is a seventeen-acre tract of semi-tropical land in Dade County, Florida.

Woodhead Named Regional Forester

Phillip V. Woodhead has been named regional forester of the Arizona-New Mexico region (Region 3) of the U. S. Forest Service, succeeding Frank C. W. Pooler, who retired July 1. A veteran of twenty-nine years with the Forest Service, Mr. Woodhead has been assistant regional forester since 1939. Prior to that he was assistant chief of the range management division at Washington, D. C.

PHILIP V. WOODHEAD
Named U. S. Regional Forester

A native of Missouri, Mr. Woodhead's experience covers assignments on national forests in Colorado and Wyoming, mainly in the field of range management and wildlife.

Mr. Pooler has been a federal forester since 1914 when he was appointed a forest ranger by the old General Land Office. His entire service has been devoted to the Southwest. He has been regional forester for a quarter century.

Georgia Tries Aerial Fire Patrol

The Georgia State Department of Forestry has announced the inauguration of an aerial fire patrol system. According to J. M. Tinker, state forester, the patrol is strictly in the nature of an experiment to determine the feasibility of using airplanes for forest fire detection and to determine the cost as compared to other methods. It is believed, he said, that the planes will prove more effective and less costly than ground lookout towers.

The experiment will be conducted in five counties in the Macon district under the direction of Paul W. Groom, state forest fire warden. It will include the use of two-way radio communications with a ground patrol in each county.

A similar experiment conducted in Texas several years ago proved highly successful.

$14,000,000 in Hunting Licenses

Hunters spent $13,547,152 for 7,505,258 hunting licenses during the 1943-44 season, the Fish and Wildlife Service has reported. This represents a decrease of 585,929 in licenses and $51,271 in revenue as compared with the preceding year.

In revenue received, Pennsylvania led all other states with $1,367,473. Next in line was Michigan with $1,104,410, followed by New York with $821,706, California with $705,579, Wisconsin with $624,894; Ohio with $623,014, Washington with $540,230, and Minnesota with $483,012.

In number of licenses issued, Michigan topped the list with 732,479, followed by New York with 589,864, Pennsylvania with 582,242, Ohio with 490,533, Indiana with 341,818, Minnesota with 332,476, Wisconsin with 291,832, and California with 282,693.

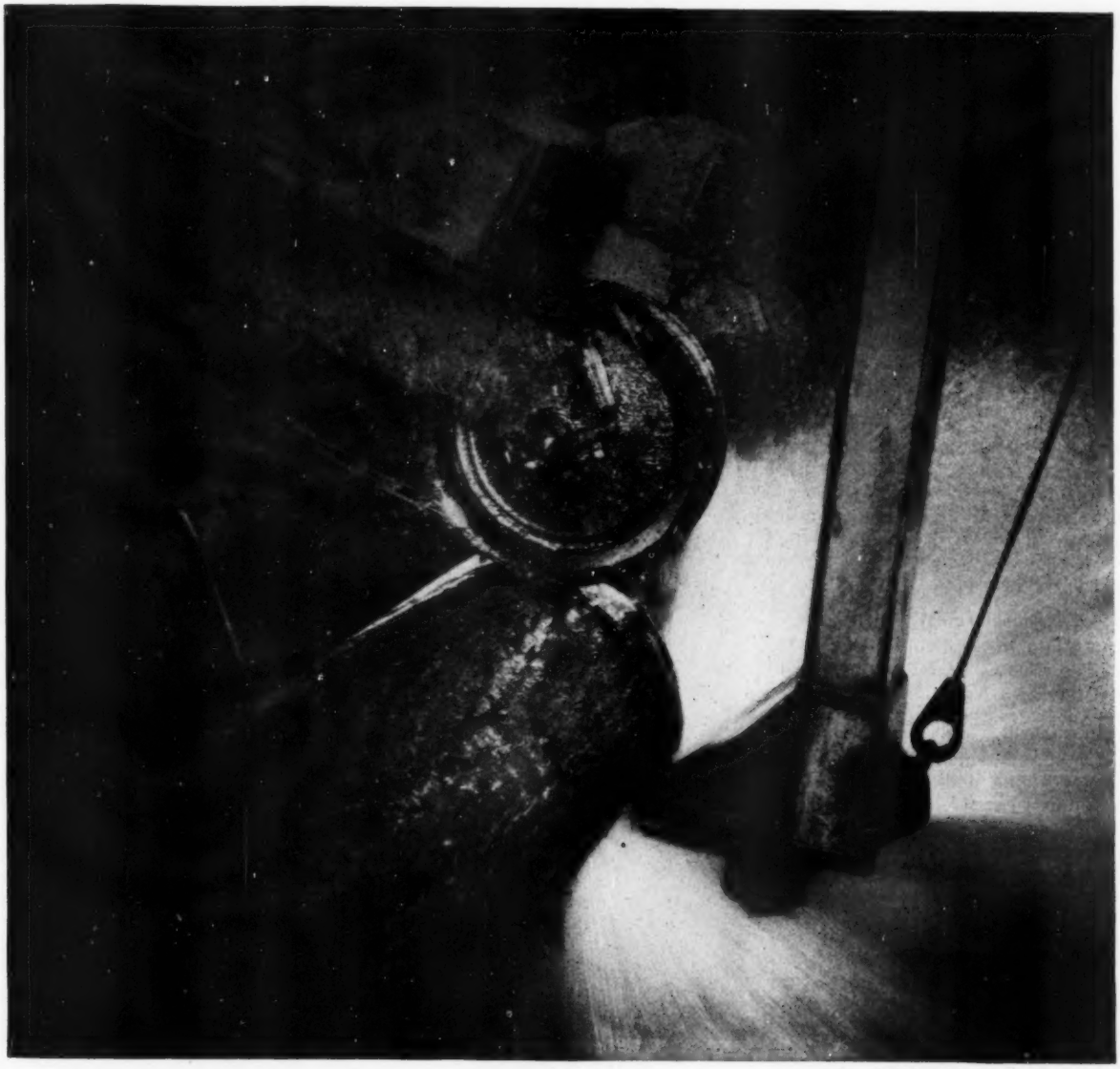
Dr. Berliner Leaves Du Pont

Dr. J. F. T. Berliner, for the past sixteen years associated with the Du Pont Company in the field of research into the improvement of wood and wood products, has resigned to join the staff of Engineering Associates, consultants specializing in chemical treatment of wood, with headquarters in St. Charles, Illinois.

Dr. Berliner in recent years has been closely identified with the development of the new process for transmuting wood by treating it with resin-forming chemicals. When impregnated with Du Pont's "arboneeld" dimethylolurea and urea, wood becomes harder and more durable.

Engineering Associates, it is announced, is undertaking a program of fundamental and applied research on methods and chemicals for improving wood as well as investigating possibilities of utilizing woods that now have little or no commercial value.

Born at Teneriffe, Canary Islands, where his father was American consul, Dr. Berliner was educated at George Washington University, where he received his Ph. D. degree in 1926.



Increasing the yield 18%

Improved wood utilization is an important part of practical forestry. For many years the Weyerhaeuser organization studied ways and means of eliminating wood waste during the process of barking hemlock logs that were used for pulp. A special hydraulic machine was finally designed and installed. The barking machine and log chipper have resulted in the saving of 18% more of the wood fibre of each hemlock log that is processed for pulp.

To a long range forestry program this means:

18 per cent more pulp and paper products from each log processed.

18 per cent longer life for a plant from existing timber supplies.

18 per cent more time in which to produce new crops of timber.

Conserving through use *now* means production of *more* for the future. Conservation, efficient utilization and permanence of production are Weyerhaeuser objectives.

WEYERHAEUSER FOREST PRODUCTS — TIMBER IS A CROP

WEYERHAEUSER

Michigan to Improve Camp Roth

Regents of the University of Michigan have appropriated $25,000 for a program of improvements at Camp Filibert Roth, the university's forestry camp on Golden Lake, northeast of Iron River.

According to Dean Samuel T. Dana, of the School of Forestry and Conservation, the appropriation will make possible the full development of the camp's resources and value. It will make Camp Roth a thoroughly modern forestry station, capable of carrying on a permanent program of research and instruction. Electricity and a new water system will be installed, as will a modern sanitary and sewage disposal system.

When the new program is completed this summer, the camp will serve as a research center for the lumber industry of Michigan, it will operate as a teaching institution, training future forestry men, and it will be the chief center of the university's summer programs in the Upper Peninsula.

Record National Forest Dividend

An all-time high dividend of $3,894,616, representing twenty-five percent of the 1944 cash receipts from national forests—an increase of approximately sixty percent over the previous year—will be shared by 653 counties in forty states, and by Alaska and Puerto Rico, the U. S. Forest Service has announced.

The largest U. S. Treasury checks ever written as a result of federal timber sales, forage, waterpower and other uses on national forest lands are accounted for almost entirely by the unprecedented wartime demands for lumber and by the use of rangelands for food production. The checks have been sent to state treasurers for distribution to more than one-fifth of the nation's 3,070 counties in which national forests are located. A federal statute stipulates that the states shall apportion the money among their counties on the basis of county acreage in national forests and that it shall be expended for schools and roads.

Net cash receipts from national forests totalled $15,616,940 in 1944, as compared with $10,056,393 in 1943. Of this amount, $12,622,949 was from the sale of timber, an increase of more than $5,000,000 over 1943.

Davis Montana Forestry Dean

Kenneth P. Davis, chief of the division of forest management research, U. S. Forest Service, known for his studies in western white pine management, has resigned to accept the position of dean of the School of Forestry, University of Montana. He will succeed Thomas C. Spaulding who has been forestry dean for more than twenty years and who headed the School of Forestry when Dr. Davis was an undergradute student at the Missoula institution.

Dr. Davis was appointed a district ranger in Montana in 1928 after he had received his B.S. Degree in Forestry from the University of Montana and served more than three years on the Absaroka National Forest. In 1932 he joined the staff of the Northern Rocky Mountain Experiment Station at Missoula and was engaged in silvicultural research until he was transferred to the Washington Office in 1940. In 1943 he was appointed chief of the forest management division.

PERRY B. DURYEA

Duryea Named New York Commissioner

Perry B. Duryea, chairman of the Joint Legislative Committee on Atlantic Shoreline Erosion, and former president of the Middle Atlantic Fisheries Association, has been appointed conservation commissioner of New York State, succeeding John B. White, who recently died.

Elected to the New York State Senate in 1941, he was chairman of the Senate Public Service Committee, and a member of the committees on conservation, highways and parkways, finance, internal affairs of towns, labor, industry and education.

He was graduated from the New York University Law School in 1915 and served overseas in World War I. He is a native of New York State.

Senate Committee Rejects MVA

After lengthy hearings, the Senate Commerce Committee has reported unfavorably on the Missouri Valley Authority bill (S. 555). This action is believed by observers to mark the turning point in Congress on the question of valley authorities. The bill is now before the Senate Committee on Irrigation and Reclamation.

Designed to establish a Missouri Valley Authority along the lines of the TVA, but on a vaster scale, the significance of this bill lies in its administrative approach to the activities of the government. It would concentrate them by regions rather than by functions. Thus, the proposed authority would have the power to take over, within the area of its jurisdiction, the activities of other agencies such as the Forest Service and the Fish and Wildlife Service. Similar measures have been introduced covering the Ohio Valley (H. R. 2540), the Columbia Valley (S. 460) and the Savannah Valley (S. 737).

At the recent hearings, an effort was made by the proponents of the bill to prove that the Flood Control Act of 1944 was inadequate; whereas the opponents contended that the new regional authority would be unnecessary and autocratic.

AFPI Chief Resigns

Announcement of the resignation of Charles R. French as public relations director of the American Forest Products Industries, Inc., of Washington, D. C., has been made by Corydon Wagner, Tacoma, Washington, chairman of the organization's administrative committee.

Mr. French, who has headed the public relations program of the forest industries since 1941, plans to start his own advertising business in Washington. Previously, he was associated with the National Lumber Manufacturers Association for many years.

At the same time, Mr. Wagner announced the appointments of Chapin Collins as Washington manager of American Forest Products Industries and of M. O. Chenoweth as manager of the New York office.

Massachusetts Names Commissioner

Archibald K. Sloper, active for the past thirty years in state, county and city conservation activities, has been appointed state commissioner of conservation for Massachusetts, succeeding R. J. Kenney. For twelve years a member of the Greylock Commission, he assisted Dr. Albert Cline of Harvard in preparing a 100-year reforestation plan.

(*Turn to page* 357)

IT'S NOT IN THE CARDS

for any Motor Grader without all-wheel drive and all-wheel steer

to equal the all-around performance of the "99-M"

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U.S.A.

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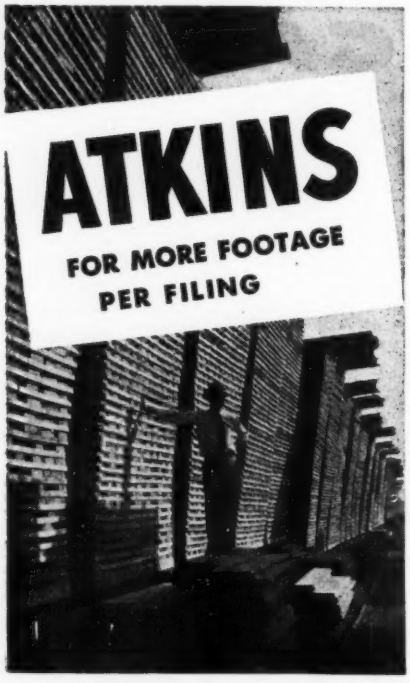

In many of the largest mills in the country, Atkins Circular Saws are given the tough jobs. Such acceptance is based on performance—on the ability of Atkins Silver Steel teeth to keep cutting for profitable extra production hours—on the long life built into these saws by the skilled craftsmen of the Atkins plant.

Atkins Solid Tooth Circulars, for example, feature tension-holding blades that do not require frequent adjustment... inserted teeth hardened and tempered to a tough, sharp cutting edge that saves on power... with the "V" in the teeth and holders machine milled with a guaranteed perfect fit.

Both Solid and Inserted Tooth saws are available in a full range of sizes. Write today for prices.

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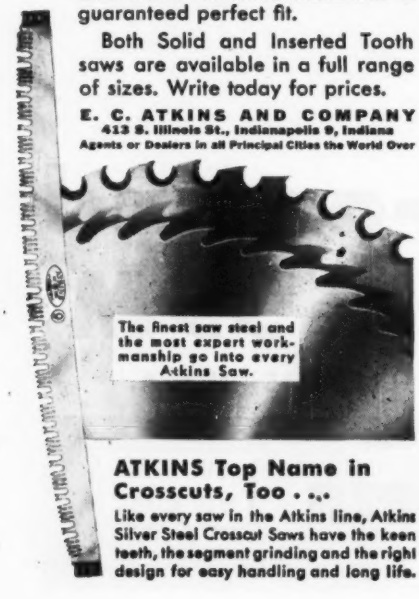
Agents or Dealers in all Principal Cities the World Over



ATKINS Top Name in Crosscuts, Too . . .

Like every saw in the Atkins line, Atkins Silver Steel Crosscut Saws have the keen teeth, the segment grinding and the right design for easy handling and long life.

ROBERT STERLING YARD—

A LIVING INFLUENCE

By BENTON MacKAYE

INFLUENCE is defined as "the gradual and unseen operation of some cause." Such was Robert Sterling Yard. Such will he remain in the cumulative mind that goes on living. He was—and is—a living influence in a world that needs the particular variety thereof which he personified, namely the influence and environment of the great outdoors.

Robert Sterling Yard

Bob Yard was past middle age before he decided finally to devote his full energies, through his brilliant journalistic skill, upon this thing he had come to value as primal among the necessities of men. At fifty-three, in 1914, he is recorded as entering "what he later considered his life work for the preservation of natural areas." He took the job of educational secretary for the National Park Service.

Bob sought for all, in outer nature, the thing that filled his inner nature. This thing was serenity. I recall a vivid instance of it. When Bob Marshall died (without fair warning to us from the fates) his friends found themselves reaching for substance wherewith to fill a vacuum. I, for one, sought it in a call upon Bob Yard and his greatly devoted lady. We all lunched together and had a long, quiet talk. Here was an instance of the thing before referred to—the "spiritual substance," so to speak, which Bob Yard had in his soul to give. Such Bob sought in the outer personality of nature.

This in scientific language is known by the term "environment"—which indeed might be defined as the "personality" of our surroundings. It may be good or bad, calm or hectic, serene or confusing, symphonious or cacophonous. The environment, unhappily, of our present super-powered civilization is becoming more and more hectic and confusing; that of primal nature, on the other hand, is essentially serene. The roar of the subway is the spokesman of the one; the "rapture on the lonely shore" is the keynote of the other. Bob was conversant with both: along with Muir and Mather, Yard saw that the only match for "roar" was "rapture."

The essence of the "pathless woods"—oh give us another Byron to set it again to verse and show the need of our own day for its power as an antidote to a crashing, crushing mechanization! If there ever was a time for such valiant counter offensive, that time is now. Half of our young manhood population, plus their families, will soon essay their recovery from the world's greatest psycho-mechanical convulsion. Any real "recovery" will take not food and care alone but a neuro-inoculation of the virus of repose. And the only source hereof lies in nature's *acreage*—a full place in the sun for our war-torn benefactors.

It was in preparing such a place—in the wild acreage of our continent—that the last days of Bob Yard were spent. During the thirty years of his "life work," from fifty-three onward, he sought out and preserved for those to come the lands and spaces, from sea to sea, pervaded by that particular brand of beneficent spiritual substance which pervaded his own benign nature, and shone forth through his ever-contagious smile.

M. R. PRESTRIDGE LUMBER CO.

Manufacturers of

Kiln Dried Douglas Fir and Ponderosa Pine

ALAMOGORDO, NEW MEXICO

TIMBER IS A CROP... DON'T BURN IT

BEHOLD OUR GREEN MANSIONS, by Richard H. D. Boerker. The University of North Carolina Press, Chapel Hill, North Carolina. 305 pages, illustrated. Price $4.00.

This book is a square and unbiased presentation of one of the country's most urgent problems, with enough facts and historical background to clarify the principal issues. To the question: "What is forestry and why is it of concern to me?" an accurate and brilliant answer is given.

Excellent photographs illustrate many phases of forestry.

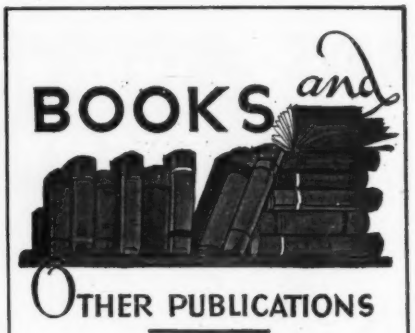
LUMBER AND LABOR, by Vernon H. Jensen. Published by Farrar & Rinehart, Inc., New York, N. Y. 308 pages. Price, $3.00.

This is a thorough and accurate study of labor in the logging and sawmilling industries. Their special problems, as a whole, are defined, besides those of each of the great forested regions. The author goes on to trace the history of the industry from Maine to Grey's Harbor, with emphasis upon its gradual unionization.

Such a book has long been overdue. Forestry schemes have often overlooked the woodsworker as a colorful but very remote Paul Bunyan. More knowledge of him and his problems can make a real contribution to a wise conservation policy.

SIERRAN CABIN . . . . FROM SKYSCRAPER, by C. M. Goethe. Published by The Keystone Press, San Francisco 4, Calif. 185 pages, illus. Price $1.25.

This is a delightful account of how "one certain Skyscraper Man" escaped systematically from the city to the nearby Sierran Piedmont region, and how in those foothills he found recreation that was *renewal*—his days made rich by observing the miracles found in the telescoped ancient life-zones of California's Sierra. "Happiness, contentment, joy *can* be had. Allen found it was possible through systematic escape from that steel-ribbed skeleton, his city skyscraper. He found it in outings in his Sierran cabin . . . the cabin site at the frontier was the battleline between two struggling faunas, floras. By studying these he could hope to acquire wisdom toward solutions of parallel human problems . . . he hoped, too, that his cabin experience might help to increase interest in the Sierran Piedmont." The book contains much little-known historic lore about the early day pocket-miners, old mining towns and strangely named geographic features, such as Sorefinger Bar, Codfish Canyon, Gouge-eye, Shirt-tail Canyon and Yankee Jim's—it is altogether a unique addition to Californiana.



A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

YOUR FORESTS, by Martha Bensley Bruere. Published by J. B. Lippincott Company, Philadelphia and New York. 156 pages, illus. Price $2.50.

As a member of the United States Forest Service and an experienced writer, the author has succeeded in presenting a readable and accurate introduction to forestry, especially suitable for younger readers. Of particular interest is the chapter on plastics and new derivatives from wood.

Fifty-six fine photographs illustrate the text. Gifford Pinchot, former head of the Forest Service, has contributed the foreword.

10,000 GARDEN QUESTIONS, edited by F. F. Rockwell. Published by The American Garden Guild and Doubleday, Doran and Company, Inc., Garden City, New York. 1,465 pages, illustrated. Price $3.95.

Prepared by an impressive staff of horticultural experts this voluminous edition contains as complete an assemblage of information as has ever been compiled for the gardener.

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The publications listed below must be ordered direct from the addresses as given and not through the Association.

Saw Timber Volume Estimates for Oregon and Washington, compiled by the Forest Survey. Pac. N.W. For. Expt. Sta., Portland, Ore.

Common Trees of South Carolina, 1944. Issued jointly by Clemson Agricultural College, Clemson, S. C., and the South Carolina State Commission of Forestry, Columbia, S. C. Price 25 cents.

Effect of Fire on Gum Yields of Longleaf and Slash Pines, by V. L. Harper. Circ. No. 710, U. S. For. Serv., U.S. D.A., Supt. of Docs., Wash., D. C.

South Carolina Forest Resources and Industries, by E. H. Frothingham and R. M. Nelson. Misc. Pub. No. 552, For. Serv., U.S.D.A., Supt. of Docs., Wash., D. C. Price 25 cents.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Columbia Basin. Soil Cons. Serv., U.S.D.A., Wash., D. C.

White Pine Blister Rust Control in California and Oregon. Bur. of Ent. and Plant Quar., U. S. Dept. Agr., Syndicate Bldg., Oakland 12, Calif.

Forest Research Notes, No. 33—Issued by the Pac. Northwest For. Expt. Sta., Portland, Ore.

The Chemical Softening of Wood for Microtome Sectioning, by William M. Harlow. Tech. Pub. No. 63, New York State College of Forestry, Syracuse, N. Y.

Recreational Resources of the Denison Dam and Reservoir Project—Texas and Oklahoma. Natl. Park Serv., U. S. Dept. of Interior. Supt. of Docs., Wash., D. C. Price 45 cents.

Empirical Stand Density Yield Tables, by G. A. Mulloy. Silv. Res. Note No. 73, Department of Mines and Resources; Lands, Parks and Forests Branch, Dominion Forest Service, Ottawa, Can.

Little Leaf Disease of Pine, by George H. Hepting, Thomas S. Buchanan, and L. W. R. Jackson. Circ. No. 716, U.S.D.A. Supt. of Docs., Wash., D.C.

The Caribbean Forester—Vol. 6, Nos. 1, 2, and 3. Forest Service, U.S.D.A. Tropical For. Exp. Sta., Rio Piedras, Puerto Rico.

Growing Walnuts For Profit. Published by The American Walnut Manufacturers Association, 616 South Michigan Avenue, Chicago 5, Ill.

Around the States

(*From page* 352)

Stamm Heads Division at Madison

Dr. Alfred J. Stamm, for nearly twenty years a member of the Forest Products Laboratory staff, Madison, Wisconsin, has been appointed chief of the Laboratory's Division of Derived Products, succeeding Dr. Earl C. Sherrard, who died last October.

Dr. Stamm's research has brought him international recognition. Through his experiments, the laboratory has been able to produce "impreg" and "compreg" (wood impregnated with chemicals that form synthetic resins within the wood). The latter of these materials has been used in the war for aircraft, motor-test propellers, dies for forming metal airplane parts, and other military products which are still secret.

A native of Los Angeles, Dr. Stamm graduated from California Institute of Technology at Pasadena. He was a chemistry instructor at the University of Wisconsin, from 1922 to 1925, meanwhile taking his Master's degree and Philosophy degree in physical chemistry.

U. S. Wood Expert Retires

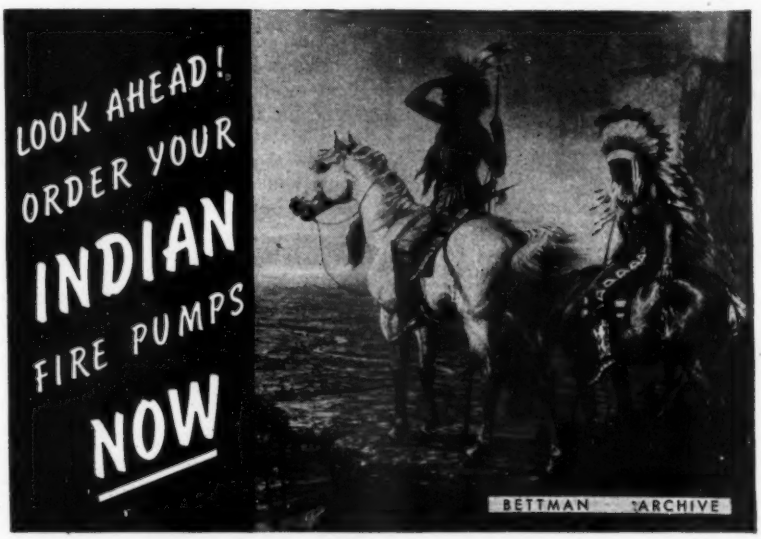
The retirement of Dr. Warren D. Brush, wood expert for the U. S. Forest Service, whose studies and investigations of the structure, properties, commercial uses and means of identification of native and foreign woods contributed to more effective wood utilization in both the first and the present world wars, has been announced.

Appointed to the position of wood expert at Washington in 1908, Dr. Brush has served as a consulting expert, furnishing various government bureaus and departments, as well as the Forest Service, with practical information on woods and problems connected with their more effective utilization, inspection and marketing.

Born in Newcomerstown, Ohio, Dr. Brush was graduated with the Degree of B.S., from Baldwin University, Ohio, in 1905. He took his Master's Degree at the University of Michigan in 1906, and his Ph.D., at American University in 1930.

The Iron Horse Needs Wood

Purchases of wood products by railroads total in dollar volume almost a quarter the volume of iron and steel products, according to *The Post-War Railway Market for Manufacturers*, issued by the Simmons-Boardman Publishing Company. Figures reveal that over $100,000,000 was spent by Class 1 railroads in 1941 for crossties, switch and bridge ties, timber, and lumber.



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By Martha Bensley Bruère

Foreword by Gifford Pinchot

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Maryland's Greatest Timber Tree

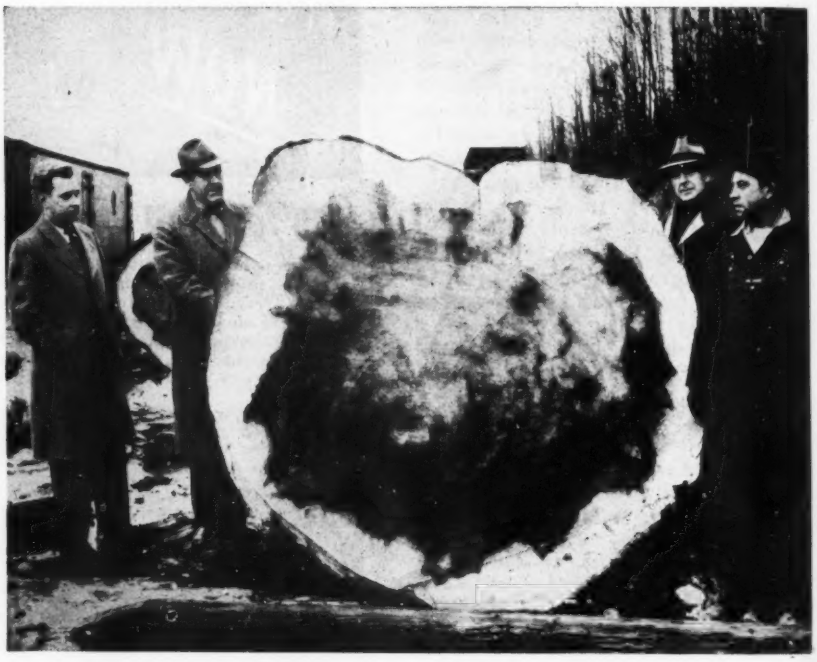
A sawmill operator in northern Maryland recently harvested what is claimed to be the largest timber tree ever felled in that state. Since news items concerning the tree first appeared in the press, some challenges have been received by the Timber Production War Project of the U. S. Forest Service through the project forester's office at Bel Air. In every case, however, the tree reported as having surpassed all others of its time in point of size and lumber content, failed by a large margin to measure up to this remarkable tuliptree logged in December, 1944, north of Elkton.

Unfortunately there is no record of a photograph ever being made of the standing tree. But official measurements made by U. S. Project Forester James R. Simmons serve somewhat to reconstruct in the minds of those who admire great trees a picture of what is claimed to be the largest and most perfect specimen ever known to have been harvested in the East.

At breast height, the great tree was nineteen feet in circumference—twenty-five and a half feet at the ground. At the point of cut, 202 annual rings were counted. It was 90 feet high. It produced 6,500 board feet of timber — 4,700 feet of prime and select veneer logs, 1,500 feet of No. 1 common, and 300 feet below No. 1 grade. In addition, four and a half cords of fuelwood were cut from it.

A study of the annual rings reveals the following interesting facts: This tree started life twelve years before Braddock's defeat and the beginning of the French and Indian War. It was thirty-three years old when the Declaration of Independence was signed. It struggled for forty years to get started, but at the end of that time some event, perhaps a storm or a lumbering operation, opened the woodland around it, giving this tuliptree more light and a better chance to develop. When it was eighty years old it grew an annual ring five-eighths of an inch in diameter. Its fastest growth was made between the years 1783 and 1808. During the latter year it grew a ring three-fourths of an inch in diameter. At time of cutting in December, 1944, this tuliptree was still going strong at the rate of a quarter of an inch a year. There is no evidence that it was ever struck by lightning, but it did suffer in certain years from lack of sufficient rainfall. The tree was logged from the property of Clifford E. Pettit between Elkton and Cowentown.

The photograph above shows the end of the butt log, which was nineteen feet long and had to be cut into two sections for loading. In all, the tree produced seven logs, ranging in length from nine to nineteen feet. Two logs twenty-four inches in diameter were cut from the two largest limbs.



This giant tuliptree near Elkton produced 6,500 board feet of timber

Canada Studies Budworm

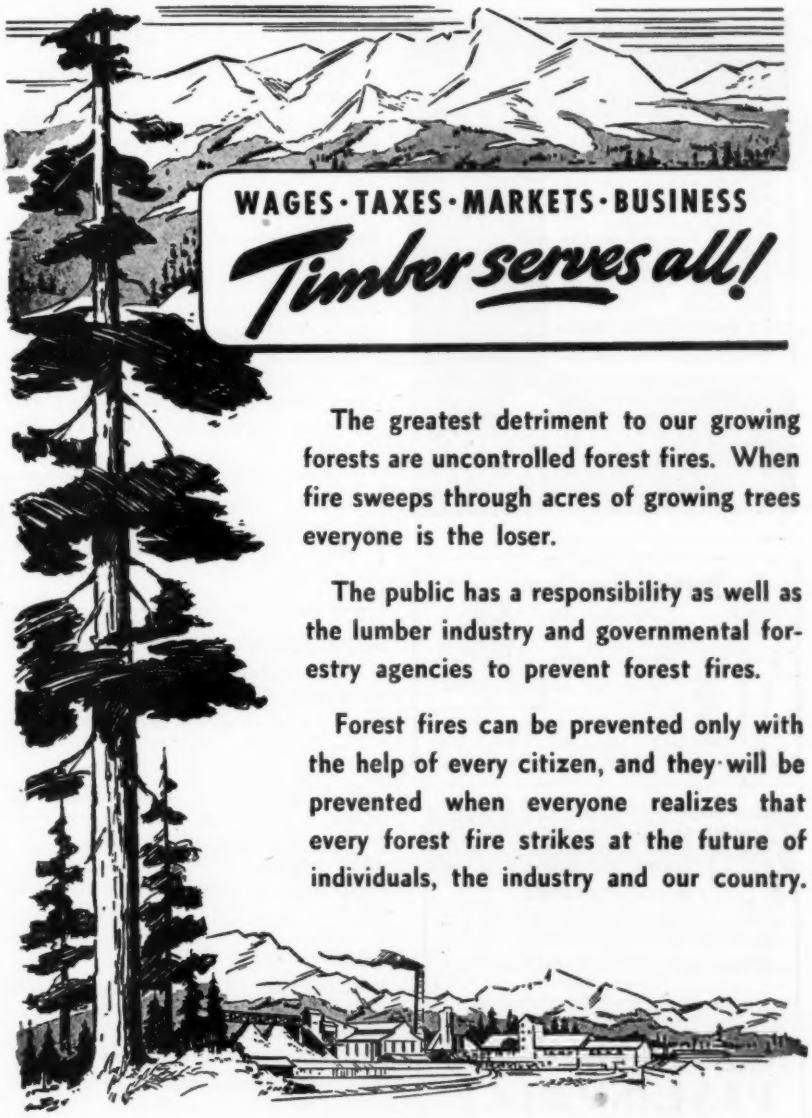
REPORTS from the forest insect laboratory at Saulte Ste. Marie, Ontario, estimate that spruce budworm has spread from Lake of the Woods in the west to St. Maurice in the east and has already infested 135,000 square miles, half of which are seriously damaged. In view of this situation, a vigorous campaign of research and control is planned for the coming season in which no possibility will be neglected.

Biological and ecological studies will be carried on under the direction of Dr. C. E. Atwood in northern Ontario, with the object of discovering the true causes underlying spruce budworm outbreaks. For this purpose strategic areas are being examined to discover the relation between composition, age and infestation of the forests. It is hoped that eventually reliable information can be supplied to pulpwood operators as to the probable degree of vulnerability of any given forest stand. Thus cutting and salvage operations can be planned to best advantage.

Studies in forest management will be centered in the Green River watershed north of Edmondston, New Brunswick. Here an attempt will be made to hold an experimental area free from serious damage by the application of preventive measures. The transfer of parasites occurring in British Columbia but not found in eastern Canada will continue with the object of building up the resistance of the forest to future attacks.

Three distinct cooperative experiments have been planned in chemical control with DDT. Preliminary tests of the effectiveness of various dosages will first be made in Algonquin Park, Ontario, on six ten-acre plots. A somewhat larger and more elaborate series of experiments on 2,000 acres will then be undertaken in the Kabonga region of the Province of Quebec. At the same time, an area of from 5,000 to 7,000 acres will be treated in the Nipigon region. The agencies participating in this work are the Dominion Department of Agriculture, the Provincial Forest Services of Ontario, and the Quebec and United States Bureau of Entomology.

Besides the above, a control experiment on a commercial scale and calling for the spraying of some 80,000 acres will be attempted by the research division of the Ontario Department of Lands and Forests, in cooperation with the Royal Canadian Air Force. Plans are also under consideration for an intensive study of the biology and ecology of the spruce budworm in a suitable area of Canada, to be made by a party of United States entomologists.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Jap Fire Balloons Explained

EXCEPT for reports that one of Japan's bomb-carrying balloons had been discovered as far east as Michigan, there were no new developments at the time of going to press in what is believed an attempt by the enemy to start forest fires in ths country by floating these highly inflammable devices across the Pacific.

The balloons are described as thirty-five feet in diameter and made of five layers of silk paper. Filled with hydrogen, they ascend to a height of 35,000 feet, where they reach air currents which travel constantly from west to east. Each time they descend to 25,000 feet from loss of gas, a barometric pressure switch drops a sandbag, causing the balloon to rise again.

If calculations are right, the last sand bag is released when the balloon is over this country. Then it automatically releases incendiary bombs before being destroyed *in the air* by a demolition charge. The only balloons found on the ground are defective ones which failed to explode.

Increased air patrol, to shoot the contraptions out of the sky, as well as alert ground patrol are being maintained in all danger zones.

CONSERVATION CALENDAR

Important Bills in Congress With Action
May 10 - June 24, 1945

Bills Enacted

S. 383 (Identical with H. R. 1690)—BANKHEAD—To provide for the further development of cooperative agricultural extension work. Signed by the President on June 6. Public Law No. 76.

H. J. Res. 208—CANNON—Joint resolution making an appropriation for emergency flood-control work, and for other purposes. Signed by the President, June 12, 1945. Public Law No. 82.

Appropriations

H. R. 3024—JOHNSON—A bill making appropriations for the Department of the Interior for the fiscal year ending June 30, 1946, and for other purposes. Reported from Committee with amendments on May 28. Report No. 316. Passed by the Senate, June 6. Conference requested by the House, June 7. Conference agreed to by Senate, June 19.

Research

H. R. 2347—POAGE—A bill to provide and insure a dependable supply of domestic natural rubber, and for other purposes. Passed by House, May 14. Sent to Senate and referred to Committee on Forestry and Agriculture, May 15.

Fish and Wildlife

H. R. 3315 — GERLACH — A bill to amend the act of March 10, 1934, entitled, "An Act to promote the conservation of wildlife, fish and game, and for other purposes." Introduced May 25. To the Committee on Agriculture.

H. R. 3459—ROBERTSON—A bill to amend the act of March 10, 1934, entitled, "An act to promote the conservation of wildlife, fish and game, and for other purposes." To the Committee on Agriculture, June 13.

H. R. 3460—ROBERTSON—A bill to permit public shooting on national wildlife refuges, and for other purposes. To the Committee on Agriculture, June 13.

H. R. 3461—ROBERTSON—A bill to preserve breeding stocks and prevent starvation and disease among waterfowl along their flyways, and for other purposes. To the Committee on Agriculture, June 13.

National Seashores

H. Res. 256—MANSFIELD—Resolution authorizing the Committe on Rivers and Harbors of the House of Representatives to investigate certain shores and beaches in the United States with a view to the protection of the shores of the United States. Referred to the Committee on Rules on May 14. Reported favorably on May 28. Report No. 621. Passed by the House June 1.

Public Domain

S. 1098—HATCH—A bill declaring certain lands to be part of the public domain, and providing for the administration thereof. Introduced June 4, and referred to the Committee on Public Lands and Surveys.

Miscellaneous

S. Res. 135—BUTLER—A resolution authorizing the Committee on Agriculture and Forestry to make an investigation of the existing newsprint shortage. Referred to Committee on Agriculture and Forestry, June 12.

NEW STATE LEGISLATION

IMPORTANT forestry legislation has been enacted during recent sessions of state legislatures. In California, Governor Earl Warren has signed three major bills, one of which reorganizes the State Board of Forestry on a staggered term basis so that continuity of policy may be obtained in the Division of Forestry. This bill adds to the board one additional representative who will represent forest land ownership. Otherwise the board remains unchanged with the exception that only one member will represent the general public instead of two.

The second important bill authorizes the acquisition, administration, protection and reforestation of forest lands. This means the state may acquire state forests, place them under management and engage in the sale of forest products. The third, or forest practices bill, establishes the machinery for self-regulation of forest practices by the industry itself. It divides the timber area of the state into four forest practice districts with a district forest practice committee appointed by the governor in each district. These committees will set up minimum forest practices for their respective districts — practices which, when approved by the Board of Forestry, will have the force and effect of law.

In Oregon, the legislature approved a total of fifteen forestry bills, one, and most significant, appropriating $100,000 toward a "state forest development revolving fund" which may be used for land acquisition, retirement of bonds, or forest management. The fund may be built up through the issuance of bonds and from revenue derived from the sale of forest products. The State Board of Forestry also is empowered to enter into sustained yield agreements with private or public agencies.

The State of Washington's forestry set-up was considerably overhauled by the legislature. Henceforth all forestry matters will be consolidated in a State Timber Resources Board of five members. Moreover, a forest practices act was passed which provides for leaving seed trees on cutover areas. In case the operator violates this law, the state supervisor of forestry may close the operation.

South Carolina has a new forest fire law which provides that the General Assembly shall appropriate annually a sum sufficient for forest fire protection in all counties. Moreover, a five-man forestry board will be appointed in each county to serve in an advisory capacity to the State Forestry Commission. Approximately $711,000 is marked for fire protection on 11,500,000 acres during the fiscal year 1945-46.

A forest practice standards bill was passed by the New York State Legislature but vetoed by Governor Dewey. The object of the bill was to establish forest management throughout the state. To allow for local conditions, twenty districts were to be set up, each with a forest practice board to formulate cutting and working rules acceptable to a state forest practice board. A technically trained forester was to be employed in each district to serve in an advisory capacity. Standards approved by the conservation commissioner upon the advice of the state board were to be promoted by the district boards.

The bill, however, contained no provisions for enforcement. Instead, it was based on cooperation with landowners.

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Chop It Down

Although this was written long before Germany surrendered, it is of current interest in that it portrays the men—GI Forest Engineers—who may even now be operating sawmills in German forests.—Editor.

SOMEWHERE in France.—You know these men belong to a special outfit when you come upon them at work. They wear the first high black boots you've seen in the U. S. Army and they don't talk your language. They speak of swamping and limbing, of chokers and jammers, of timber cruisers and slab piles and of a mysterious Biltmore stick. They are members of an Engineer Forestry outfit.

It's a GI outfit though—but with axes and peavies and saws instead of rifles and mortars and grenades. It's one of the few Engineer Forestry outfits in France and part of one of the most widely scattered battalions in the Army.

Hidden away in the deepest forest preserves of France, these black-booted muscle-men are almost unknown to their fellow soldiers, but they produce stuff that is essential to keeping tanks and doughfeet moving forward. Lumber, timber, pilings and railway ties—all are needed to build bridges, roads, docks and railways for a mobile army. The portable sawmills that turn out this high-priority merchandise are equipped to work twenty-four hours a day.

The outfit is really two companies, working as a team. One, commanded by Capt. Winton Bernardin, is headquarters company for the only Engineer Forestry battalion in the Army. The three companies it is supposed to administer, however, are scattered between India and the South Pacific. The other half of the team is a separate forestry company, not part of the original battalion, but trained by it in the United States. Its CO is Lt. Maurice Reeves and his men are the real loggers and sawmill operators.

The men come from every walk of life. There are farmers and gandy dancers, salesmen and professors. S/Sgt. Al Rabin, a mill foreman, was assistant shoe buyer in a Milwaukee, Wisconsin, department store. Now he bosses doggers, setters, sawyers, off-bearers and cut-off men with as much ease as he used to size up a pair of 8½ D's.

Cpl. Harol J. Liesh is a saw filer now, but he used to operate a linotype for a newspaper in St. Paul, Minnesota. His biggest present worry is shrapnel—from the last war. Most of the logs he uses, taken from a French depot, contain imbedded shrapnel, which plays hell with the dogs (or teeth) of his saws.

S/Sgt. Joseph A. Hager of Los Angeles, California, was born in Germany. He sums up the immediate goal of the forestry outfit pretty well.

"That Black Forest in Germany," he says, "that's where I want to go. Most beautiful forest in the world. The Germans love that forest more than anything in the world. Chop it down!"—*YANK* Field Correspondent. *Reprinted from YANK, the Army Weekly, for February 2, 1945.*

Sierra Back-Country

(*From page* 327)

less smaller streams, born of the snow which lies on the flanks of the Main Crest and its lateral buttresses.

This melting "white gold" flows into thousands of lakes in the 10,000-foot basins, which act as reservoirs to check the flow and distribute the water down the main river gorges and through the length of the San Joaquin Valley to the west. Thus, to reach the high country, you might drop down the paved highway, then turn sharply uphill at the Kaweah North Fork, and climb to Mineral King, nestling at the foot of spire-like Sawtooth Peak. Accommodations are available there, including supplies, saddle and pack stock.

Again, before you, will spread a network of trails, leading back to any combination of surroundings you may desire. Over Farewell Gap, a mere 10,500 feet in elevation, lies a beautiful forested country of rolling meadows and sparkling streams, in which you might roam for weeks. Altitude, of course, will magically determine character of the country and the "climate," for 3,000 feet ascended in a day will take you from warm, lush spring to timberline. Up there the high lake basins are peopled with great, glacial boulders and stunted, but sturdy, lodgepole and foxtail pines. It may frost any night, and you will want to dress for bed.

Three hours from Mineral King will put you in Franklin Pass, at 11,500 feet, where you will write in the register and gaze afar, across the mighty Kern River Canyon to the real giants of the Main Crest, dominated by massive Mt. Whitney. Perhaps you will descend via Soda Creek, peopled with golden trout, which are wonderful to behold and most tempting in a frying pan after a day on the trail. Then across the great chasm of Big Arroya lies the wild Chagoopa Plateau, forested and remote, which stretches back to the frowning Kaweah Peaks.

But, if the Main Crest and the higher

basins had appeal, you would descend beautiful Rattlesnake Creek thrcugh a long series of green meadows and forested glens into the magic gorge of the Kern River for a night's stop. And here, beside one of the largest and most charming of Sierra rivers, is paradise. There are wide, green meadows, sprinkled with flowers, forests of fir and pine, at their best at this elevation of 6,600 feet. You will enjoy the dense, river jungles, and find flowering dogwoods and azaleas.

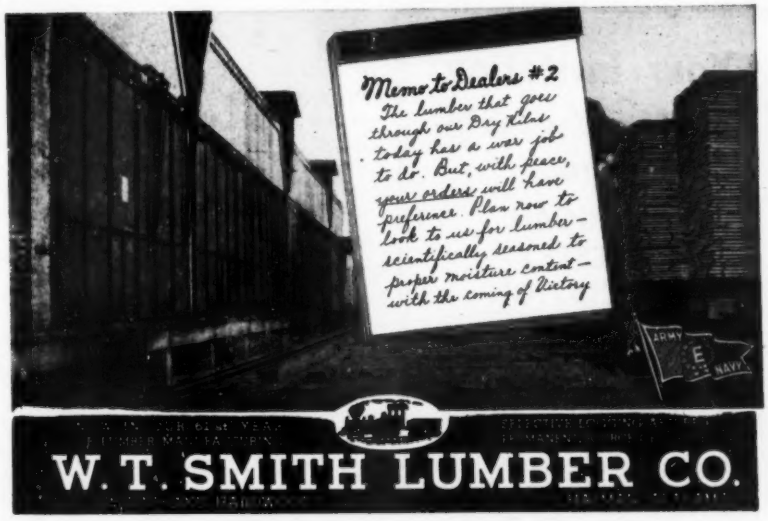
Perhaps you will consult your park trail maps as to route, and discuss this important matter with the park ranger when he stops on his inspection tours. If the great canyon has you enthralled, you just take the up-river trail, which leads, by easy stages, for twenty miles beside the singing water. Then an abrupt climb out the glaciated upper canyon wall, and before you will be spread a series of wide lake basins where the mighty Kern is born. Some fifty blue lakes of varying size are within easy access, the highest lying almost under the year-round snowbanks of the high Kings-Kern Divide.

Now, should desire take you farther north, you would tackle Forester Pass, 13,300 feet, probably the highest trail pass in North America. Beyond it lies the great wilderness area of Kings-Canyon National Park. There are 700 square miles of this great wilderness park, and you would need all summer to explore it thoroughly.

But your high trail itinerary would surely include a side trip to ascend Mt. Whitney, regardless of your return route. And this you would never regret. You simply ride your gentle little mountain horse to the top of the giant peak. And here, the highest point in the United States, at 14,496 feet, you are 10,000 feet above the tiny green squares, which the binoculars disclose to be fields down in Owens Valley. Beyond, the eye leaps to the stark, vari-colored Inyo Range, which rears 8,000 feet above the valley floor, only a few miles distant from you.

Far, far beyond are the mystic blue desert ranges, and between them the hazy voids which mark Saline Valley and famous Death Valley, 271 feet below sea level. You will want to sit a long time up there and marvel at the immensity of your universe. You will feel very small, and think sober thoughts, and pity the insignificant beings who, just then, are crowding the street cars back in the city. All this is something to be thankful for. It is the domain of nature-loving Americans. It is yours.

And, if you hope to ever know all of it, remember the words of the old-time mountaineer who mourned, "I've traveled these trails for forty years and I just can't live long enough to see it all."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FRONT

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SPREAD the message of Forest Fire Prevention by distributing these Book Matches—and at the same time have the advantage of your imprint on each match book.

THESE useful matches *with your imprint available* in case lots (2,500 books) at $12.50 a case—Free Delivery on 3 or more cases with same imprint to one address. Express collect on less than 3. State Tax added in these States: Iowa 2%, California 2½%, Ohio 3%. Allow 4 weeks for delivery.

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A Match Has A Head But Can't Think—You Can—
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THE AMERICAN FORESTRY ASSN., 919 17th St., N. W., Wash. 6, D. C.

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7-45

Your Invitation To Membership

IN THE

AMERICAN FORESTRY ASSOCIATION

TO provide a basis for informed postwar handling of one of the country's most important natural resources, The American Forestry Association is undertaking a fact-finding survey to determine what effect the war is having upon the country's forests and forest lands and what will be their condition when the manifold problems of reconstruction are at hand. This important undertaking is known as the Forest Resource Appraisal.

Public-spirited citizens, industrialists and organizations alert to the need of forest conservation and development in postwar economy are making this survey possible by underwriting its estimated cost of $250,000.

Many other individuals and organizations are indirectly supporting this activity through membership in The American Forestry Association. We would welcome your participation in the important program of the Association, and for your convenience the various classes of membership are listed in the coupon below.

The American Forestry Association,
919 17th St., N. W., Washington 6, D. C.

I hereby apply for membership in The American Forestry Association and enclose $_____.

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- ☐ Contributing Membership ____ 10
- ☐ Sustaining Membership ____ 25
- ☐ Life Membership ____ 100

AMERICAN FORESTS Magazine is Sent Monthly to Members.

Name_____

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7-45

Nantahala

(*From page* 332)

rocky gorge below. "Dry Falls" is a prosaic name for so unforgettable a scene, but it refers to a distinctive feature of the waterfall: halfway between top and bottom a rock ledge twelve feet wide runs behind the descending torrent. A Forest Service rustic path approaches this shelf which the visitor can walk across, dry and in safety, to come out on the far side of the falls.

Truly, the attractions of Nantahala are legion. Off toward the northwest, but entirely within the confines of the national forest, lies the Joyce Kilmer Memorial Forest, dedicated to the great soldier-poet. Within this tract there are 3,800 acres of exceptional virgin hardwood timber, standing in all its primeval beauty. Good Forest Service roads enable visitors to go into the very heart of this memorial forest.

Just beyond the northeastern corner of Nantahala is the Qualla Indian reservation, home of the Cherokees, where many of the old tribal customs still prevail. In bygone times the Nantahala territory was a fruitful hunting ground for the Cherokees; fish, and all kinds of game, were abundant. Although in recent years this natural food supply became somewhat depleted, protection and restocking have shown excellent results. There are even areas where exciting hunts for wild Russian boar are held each season.

The forest abounds in Indian nomenclature, and there are such picturesque place-names as Hanging Dog Creek, Winding Stair Road, Shooting Creek, Snowbird Mountains, Buffalo Creek and, of all things, a mountain named Hangover.

Crossing the mountains to Nantahala Gorge, one passes veritable fields of blooming rhododendron, flame-like wild azaleas and pink mountain laurel.

Nantahala Gorge, "Land of the Noonday Sun," is just a short distance from where General Winfield Scott began the construction of his military road across the mountains in order to move the Cherokee nation to their new home in Oklahoma. The original road has been so greatly improved by the Forest Service that visitors may now drive over this historic as well as scenic route.

Nantahala National Forest, possessing much natural wealth, is also a recreation area for which all the nation is the richer.

AUTHORS and PHOTO CREDITS

JOHN KIERAN (*My Favorite Tree*)—famed as one of the unstumpable "experts" on the radio feature, *"Information, Please,"*—Mr. Kieran is an author and true nature lover as well. FREDERICK SHULLEY (*River Drive*) is attached to the WPB, in public relations for the Pulp and Paper Division. CLAUDE M. KREIDER (*Sierra Back-Country*), with a lifelong knowledge of the High Sierra, writes from California. DOROTHY FERRELL HAYDEN (*Nantahala—Land of the Noonday Sun*) is an Atlanta writer and photographer. ROGER U. SWINGLE (*Another Enemy Flanks the Elm*) is plant pathologist in the Bureau of Plant Industry, U.S.D.A. JAMES O. ARTMAN (*Wayne County Shows the Way*) is with the TVA in forestry relations for the Watershed Protection Division. OREN ARNOLD (*He Stole 12,000,000 Acres*) is a well known writer of Phoenix, Arizona. R. H. WILLIAMS (*Fire Fighters Must Eat*) is an officer of the Department of Forester and Fire Warden of Los Angeles County, California. CAL STOTT (*A Fourteenth Son Practices Forestry*) is with the Division of State and Private Forestry, U. S. Forest Service, Milwaukee, Wisconsin.

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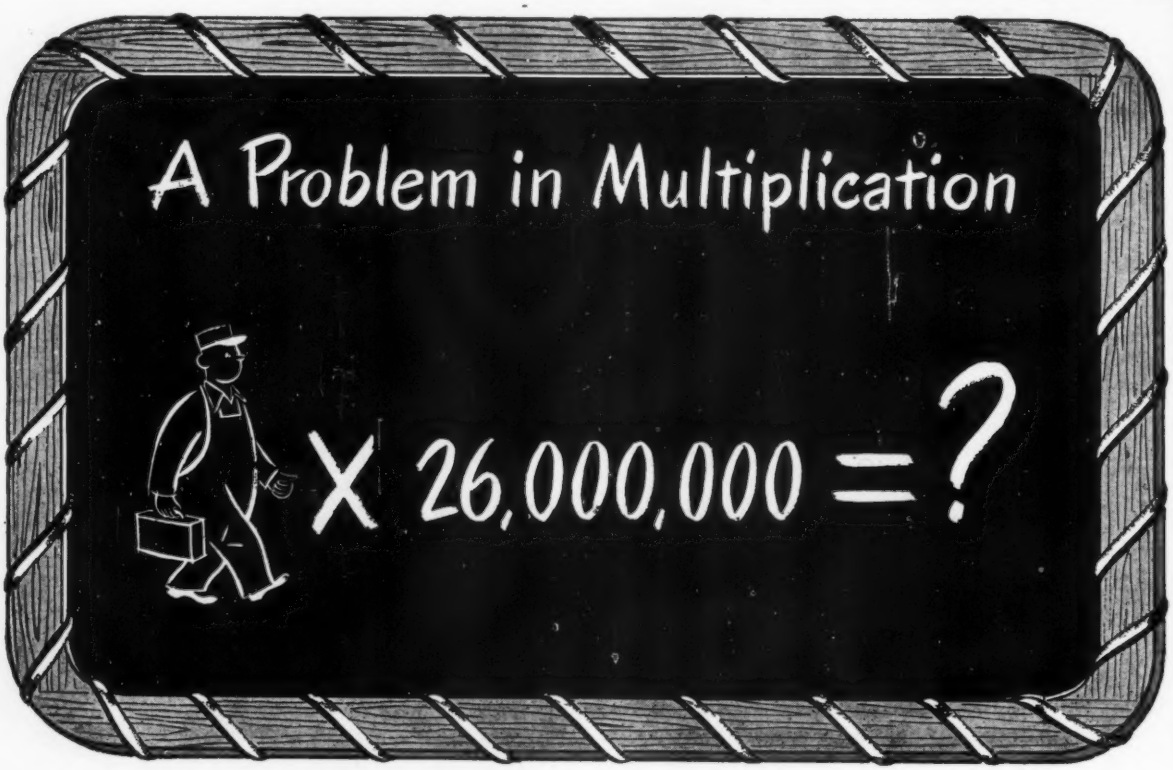

Take the case of John Smith, average American:

For over three years now, he's been buying War Bonds through the Payroll Savings Plan. He's been putting away a good chunk of his earnings regularly—week in, week out. Forgetting about it.

He's accumulating money—maybe for the first time in his life. He's building up a reserve. He's taking advantage of higher wages to put himself in a solid financial position.

Now suppose *everybody* in the Payroll Plan—everybody who's earning more than he or she needs to live on—does what John Smith is doing. In other words, suppose you multiply John Smith by 26 million.

What do you get?

Why—you get a whole country that's just like John Smith! A solid, strong, healthy, prosperous America where everybody can work and earn and live in peace and comfort when this war is done.

For a country *can't help* being, as a whole, just what its people are individually!

If enough John Smiths are sound—their country's *got* to be!

The kind of future that America will have—that you and your family will have—is in your hands.

Right now, you have a grip on a *wonderful* future. Don't let loose of it for a second.

Hang onto your War Bonds!

BUY ALL THE BONDS YOU CAN...
KEEP ALL THE BONDS YOU BUY

AMERICAN FORESTS MAGAZINE

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council

ATTENTION

HELP THE A.F.A.!

We are deeply interested in having your ideas and suggestions as to how your magazine, **AMERICAN FORESTS**, can be more helpful to you in the many years of outdoor life before you.

The better it becomes in reflecting your interests while furthering the goals of the Association, the more you will support these goals and will recommend **AMERICAN FORESTS** to your friends.

Here, then, is your opportunity to give us greatly needed data about yourself, your outdoor activities and how we can help you with them. Let's work together

ALL HIKERS CAMPERS HUNTERS FISHERMEN STUDY GROUPS and OTHER FOREST ENTHUSIASTS

ATTENTION

to make our forests more useful, more enjoyable and better appreciated. Below, and on the reverse of this page, you will find a detailed questionnaire. Please fill it in fully on both sides and mail it back to us today!

IMPORTANT

A $25 War Bond will be awarded the person sending in the most complete and intelligent reply. To everyone replying will be sent a box of 50 of the Association's new FOREST FIRE PREVENTION Book Matches. To qualify your reply must be postmarked by August 31.

GIVE US YOUR IDEAS AND SUGGESTIONS

(CUT HERE)

1. In which types of forest recreation will you be interested when you can get the equipment?

Check all types of recreation interested in, then rate each type (1-2-3) in order of postwar interest. Rate each type (A-B-C) in order of present participation. (See example below.) Finally, write in the lines below each heading, the equipment you'll need when it is available. Estimate the total approximate cost thereof at present prices in space reserved for this purpose under each column.

EXAMPLE	HIKING	CAMPING	FISHING	HUNTING	Record and Rate Other Forest Recreation	
V Hiking 2A						
Waterproof Boots						
Windbreaker						
Knapsack						
Pup Tent						
Woods Knife						
App. $125.00						
	App. $	App. $	App. $	App. $	App. $	App. $

2. Likewise tell us which types of forest studies and specimen collecting, also other forest hobbies you are now or will be interested in shortly after the war's end.

(Follow same procedure with "Present" (A-B-C) and "Postwar" (1-2-3) ratings and equipment needs record, except that you write in your preferred activities, equipment purchases and estimated prices from the following list—*Study and Collection of:* Birds, Insects, Trees, Rocks, Plants, Butterflies, Bees, Wildlife, Etc., Etc, *Hobbies:* Sketching and/or Painting (Pencil, Crayon, Pastel, Watercolor or Oil), Etching, Woodcuts, Photography (Still or Movie, Color or Plain).

App. $	App. $	App. $	App. $	App. $	App. $

3. (A) Check which of the following articles you have read in this issue *thoroughly* (note as "T"); those which you have merely *scanned* (note as "S"); and those which you *did not read at all* (note as "N"). (B) Mark with an "X" in the column provided, the *three* articles which interested you most. There should be a "T", "S" or "N" for each article.

"X"	"TSN"		
( )	____	Forest Exchange	314
( )	____	My Favorite Tree	316
( )	____	Editoria.	319
( )	____	River Drive	320
( )	____	Europe's Forests After V-E Day	324
( )	____	Sierra Back-Country	326
( )	____	Wayne County Shows the Way	328
( )	____	Land of the Noonday Sun	332
( )	____	Another Enemy Flanks the Elms	334
( )	____	He Stole 12,000,000 Acres	336
( )	____	The Fast Growing Forests of Arkansas	338
( )	____	Fire Fighters Must Eat	344
( )	____	The Cold Facts About Lumber	346
( )	____	A Fourteenth Son	348

(OVER)

Wayne County Shows the Way

(*From page* 331)

ciation. He was the one who kept prodding public fire-control agencies until they were persuaded to intensify their activities. When adequate fire control was assured, it was he who steered his company into sustained-yield timber management.

In 1943, the Hassell & Hughes Lumber Company had to make a major decision. Most of the pine sawtimber had been cut on their 70,000-acre holdings and nothing much but low-grade hardwoods remained. Should they complete the liquidation of their timber and go out of business—or should they revise their cutting practices and plan a permanent operation? TVA foresters made a reconnaissance of their best 50,000 acres and found that it was financially possible for the company to continue in business if they were willing to make the necessary adjustments.

The inventory showed a present timber volume of 81,000,000 board feet—40,000,000 in low-quality trees rejected by previous loggers, and 41,000,000 in good trees which had not yet reached sawtimber size. Company officials studied the inventory figures and began making the necessary operational changes. An employee, trained to mark timber, was instructed to mark for cutting nothing but low-grade hardwoods. The logging tempo was slowed down from 7,000,000 board feet a year to 3,000,000. To compensate for this reduction in raw materials, the company's mill began producing finished dimension items instead of rough lumber. More time was spent in remanufacture and the products brought a higher price; income and employment did not decrease.

The present stand of timber is growing new wood at the rate of 5,300,000 board feet each year. If 3,000,000 feet is cut each year the annual *net* gain in volume will be 2,300,000 feet. After ten years of this kind of management, the volume of timber on the 50,000 acres will have increased to 100,000,000 board feet, and the stumpage value of the property will have made a net gain of approximately $100,000. Then the company will have within sight its ultimate goal—a stable industry based on a growing stock of 150,000,000 board feet of high-quality timber and a perpetual annual harvest of 7,500,000 board feet.

All of the company's employees have been told about this new kind of lumbering and the idea suits them fine. The logs which come to the mill now are a real challenge to the skill of veteran sawyer Harve Repp. Uncle Harve has been sawing lumber for fifty years and not so long ago he would have refused to put logs like these on his saw carriage; but he understands why they must be cut and uses all his ingenuity to get the most out of them.

Here, then, in Wayne County is the answer to every forester's dream: adequate fire control, a public appreciation of forest values, and a stabilized lumber industry. Here, at democracy's very roots, the people have demonstrated that individuals and industry, working with government, can restore to productivity a sadly depleted forest resource. "Grass roots" action can be expected to produce similar miracles if other citizens will but assume their responsibilities.

4. Are present front covers satisfactory or could they be improved? Satisfactory ....; Be improved ....

(If not satisfactory, what improvement do you suggest?) ....

More editorial material or more pictures—Which? ....

5. Would you like supplementary pamphlets amplifying specific subjects in detail (10c-25c)? Yes .... No ....

If yes, what subjects? ....

6. Is your subscription primarily for the magazine or for membership in The American Forestry Association?

Remarks ....

7. How many persons besides yourself read your copy of the magazine? No. .... in family. No. .... outside family

What do you do with your copy after reading? Pass it to others .... File it .... Discard it ....

8. With which of the following fields of forestry and land management are you actively identified at present?

Federal .... State .... Municipal .... Private Industry .... Other .... None ....

(If none—state interest in forestry or related fields) ....

Name .... Address .... City .... State ....

Age .... yrs. Married or single .... Adults in Family .... Children under 12 .... Children over 12 ....

Family Income: "A" ($1000-$2500) ....; "B" ($2600-$5000) ....; "C" ($5000-$7500) ....; Over $7500 ....

Occupation .... Character of present work ....

Personal Hobby or Avocation .... Family Hobby or Avocation ....

If your personal income were increased 15%, what would you do with the increase? ....

Do you own your own home ....; automobile(s) ....; boat ....; forest or woodland ....

Thank you. Be sure you answered all questions fully and then tear out this form and return it to:

THE AMERICAN FORESTRY ASSOCIATION **919 17th Street, N. W., Washington 6, D. C.**

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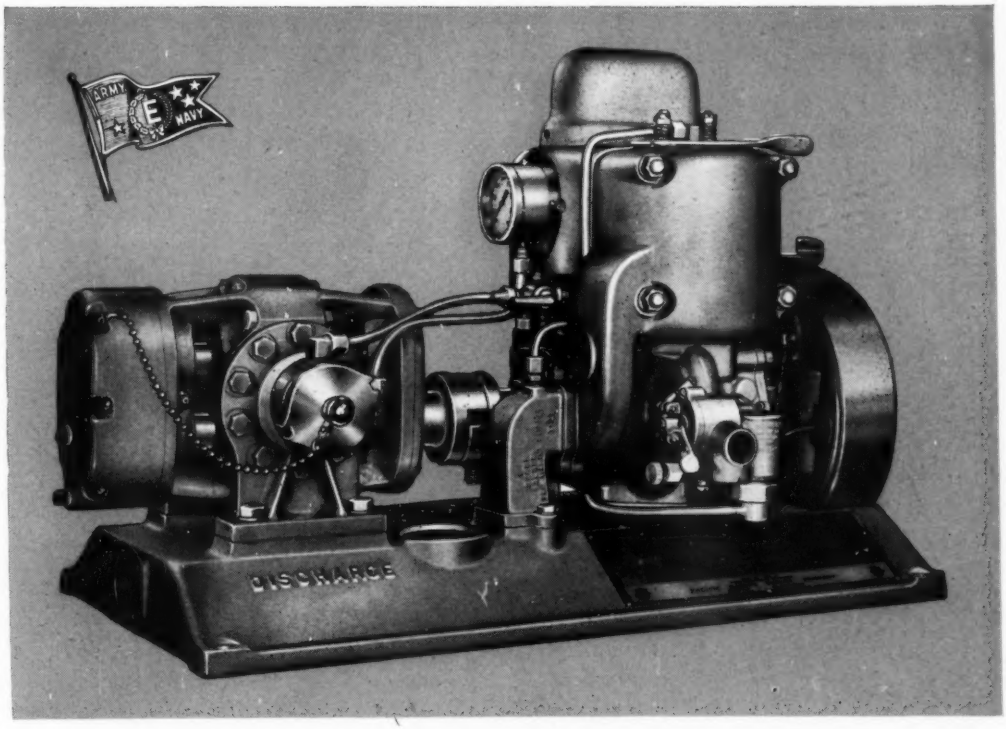

While the major part of our manufacturing effort still is confined to production for the Navy, we once again are able to produce a limited quantity of our highly specialized fire-fighting Type "Y" Portable Pumpers for the forestry service, industrial plants and commercial shipping.

For weight and size, Pacific Marine Type "Y" is the most powerful portable pumper yet built. Base, 24 x 12 inches; height, 13 inches; net weight complete, ready to operate, 70 pounds.

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